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Abstract

The circular economy is widely promoted as a systemic alternative to linear production models, particularly in resource-intensive sectors such as textiles. However, despite increasing regulatory pressure and corporate commitments, actual implementation rarely corresponds to the transformative ambition articulated in policy and strategy. Instead, circular initiatives often take selective and recurrent organisational forms. This thesis investigates the mechanisms underlying this pattern.

Departing from barrier-based interpretations of sustainability transitions, the study conceptualises risk as a structuring condition of circular economy implementation. It asks: How do structural, organisational, institutional and reputational risks shape the implementation of circular economy initiatives in the textile industry?

The research adopts a qualitative single-case study design based on systematic document analysis of the Varner Group, a Norwegian textile company. To analyse how circular initiatives are framed, operationalised and bounded in practice, the research uses corporate sustainability reports, supplier standards and public communications. The four risk dimensions are operationalised as analytical categories and traced across implementation domains.

The findings show that circular economy implementation does not emerge as comprehensive organisational redesign. Instead, it stabilises in patterned pathways shaped by interacting risk configurations. Implementation becomes governance-oriented, data-intensive and focused on post-consumption management under infrastructural constraints, regulatory uncertainty and reputational exposure. Risk operates not only as an obstacle but as a selection mechanism that conditions which forms of circularity become feasible and legitimate.

By reframing risk as a structuring mechanism in sustainability transitions, the thesis contributes to circular economy research through a configurational explanation of implementation outcomes.

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Introduction

Circular economy (CE) has emerged as a central framework within sustainability policy and corporate strategy, presented as a systemic alternative to linear production and consumption models (Murray et al. 2017; European Commission 2022). Governments, international organisations and industry actors increasingly position circularity as essential to addressing resource depletion, environmental degradation and climate pressures (Ellen MacArthur Foundation n.b.; European Commission 2022). Rather than focusing solely on waste management, CE is framed as a broader reorganisation of material flows, business models and value creation processes (Murray et al. 2017). As a result, circularity has moved from aspirational visions to operational plans for transition, placing CE implementation at the centre of contemporary sustainability debates.

The textile and apparel industry occupies a particularly visible position within this agenda. Characterised by globalised production networks, high material intensity and rapid product cycles, the sector has become a focal point for circular ambitions (OECD 2013; Niinimäki et al. 2020a). At the same time, its organisational and competitive dynamics make the industry structurally resistant to systemic redesign. Circular initiatives must be introduced into established systems oriented toward scale, speed and international coordination. The industry therefore makes for an analytically relevant subject for examining how CE ambitions are translated into practice under structural constraint.

This relevance is reinforced by evolving regulatory frameworks and governance expectations. In recent years, European and international policy initiatives have expanded requirements related to transparency, producer responsibility and product standards, signalling a shift from voluntary sustainability commitments to more formalised obligations (European Commission 2022; Jones and Leonas 2025). Firms operating in the textile sector must navigate an environment marked by regulatory development, stakeholder scrutiny and increasing demands for accountability. Implementation unfolds within a governance landscape in which expectations are articulated at the policy level, while technical, infrastructural and institutional conditions remain unevenly developed (Geels et al. 2017).

Despite the transition-oriented ambition of CE and growing institutional pressure for its adoption, implementation frequently consolidates into selective and patterned forms. Rather than unfolding as comprehensive organisational redesign or volumetric reduction, circular initiatives often stabilise in domains such as data disclosure, material substitution, pilot projects and post-consumption waste management. Research on sustainability transitions has demonstrated how established socio-technical regimes shape and constrain transformation processes (Geels et al. 2017; Fischer and Pascucci 2017). Yet this literature often conceptualises constraint primarily as barrier or lock-in. Less attention has been given to how interacting conditions structure the specific institutional forms that implementation assumes within firms.

This thesis addresses that gap by conceptualising risk as a structuring mechanism in CE implementation. Structural, organisational, institutional and reputational risks are treated not as isolated obstacles to overcome, but as interacting conditions that define what forms of circularity become feasible, governable and legitimate in practice. Under this perspective, implementation outcomes are understood as patterned adaptations within layered risk environments rather than incomplete realisations of an ideal transition trajectory.

This thesis therefore asks:

How do structural, organisational, institutional and reputational risks shape the implementation of circular economy initiatives in the textile industry?

To answer this question, the study adopts a qualitative case study design based on systematic document analysis. Corporate sustainability reports, supplier codes of conduct, policy responses and brand-level communication are analysed as formal documents that show how the company defines its circular initiatives, explains associated challenges, and specifies the conditions under which these initiatives are implemented. Instead of evaluating environmental performance, the analysis looks at how circular initiatives are framed, qualified and bounded, and identifies recurring configurations through which risk dimensions interact to shape implementation pathways.

By shifting the analytical focus from barriers to structuring conditions, the thesis contributes to transition research in two ways. First, it advances a configurational understanding of CE implementation, demonstrating how layered risks interact to stabilise specific institutional forms of circularity. Second, it illustrates how qualitative document-based case studies can show patterned adaptation within sustainability transitions, thereby revealing how ambition and constraint co-produce implementation outcomes.

The remainder of the thesis proceeds deductively. Chapter 1 develops the industry context, theoretical framework and research focus. It conceptualises CE as a transition construct, situates it within the structural characteristics of the global textile industry and the Scandinavian institutional setting, and develops a multi-level understanding of risk in sustainability transitions. Chapter 2 outlines the methodological design and operationalises the risk categories guiding the empirical analysis. Chapter 3 presents the case findings and reconstructs recurring implementation pathways. Chapter 4 discusses the implications of these findings for CE and transition literature. Chapter 5 concludes by synthesising the analytical insights and reflecting on their theoretical and methodological significance.

1. Industry Context, Theoretical Framework and Research Focus

1.1 Circular economy

1.1.1 Defining circular economy

The circular economy (hereby just CE) serves as an alternative to the traditional linear “take-make-dispose” approach. While no single, universally accepted definition of the CE exists, policy and practitioner discourse is strongly influenced by the framework developed by the Ellen MacArthur Foundation. CE, according to the foundation, is a system where value is preserved over time, thereby minimising waste, through processes like maintenance, reuse, refurbishment, remanufacture, recycling and composting. This definition illustrates that CE aims to decouple economic activity from the consumption of finite resources, thereby addressing critical global challenges such as climate change, biodiversity loss, and pollution (Murray et al. 2017; Ellen MacArthur Foundation n.b.).

CE focuses on key aspects, including closed material loops, extended product lifecycles and reduced dependence on virgin resources (Ellen MacArthur Foundation n.b.). This aligns with the overall goal of maintaining products and materials at their highest utility over time (Ocolişanu et al. 2022). While CE provides a solid framework for sustainable economic activity, it is important to clarify that this definition is aspirational and not representative of existing economic systems (Lowe et al. 2025). However, such changes are shaped by existing economic structures and, in many cases, power relations, which influence what is realistically possible (Lowe et al. 2025).

While widely adopted definitions of the CE provide a useful baseline for analysis, they primarily articulate normative ambitions rather than pathways to how circularity can be realised in practice. To move beyond definitions and towards a deeper conceptual understanding, it is therefore necessary to examine the theoretical foundations that underpin the CE and the assumptions embedded within them.

1.1.2 Theoretical foundation and conceptual scope

Despite growing consensus that prevailing linear production and consumption systems are environmentally unsustainable, translating this criticism into effective alternatives remains challenging. The CE has emerged as a predominant response, offering an alternative to the take-make-dispose model by proposing fundamental reorganisation of how value, materials and resources circulate within the economy. Still, while CE is widely promoted as a solution to resource depletion and environmental degradation, its conceptual breadth and normative ambition raise important questions about how and to what extent circularity can be realised in practice. This section therefore examines the conceptual foundations and scope of the CE, clarifying how CE is framed in the literature and why its meaning remains flexible.

The linear model is conceptualised as structurally incompatible with the limitations of natural ecosystems, as it is dependent on continuously depleting resources, generating large volumes of waste and externalising environmental degradation (Medjdoub 2020). CE is framed as an alternative system to instead preserve value of products, materials and resources for as long as possible through practices like the ones listed by the Ellen MacArthur Foundation (Ellen MacArthur Foundation n.b.). Drawing on principles from industrial ecology and systems thinking, CE conceptualises the economy as a set of interconnected material and energy flows, where waste is treated as a design failure instead of an inevitable outcome of economic activity (Murray et al. 2017). From this perspective, circularity is not limited to an end-of-life waste management but instead includes a fundamental reconfiguration of production and consumption systems to promote economic prosperity without depleting natural resources (Medjdoub 2020).

CE is a broad system-oriented concept that extends beyond individual recycling practices or environmental policies. CE practices can be applied at many levels throughout a products' production and lifecycle. This includes product design, firm-level business models, supply chains, industrial systems and national economic frameworks (Medjdoub 2020; Murray et al. 2017). Conceptually, the CE differentiates between technical cycles and biological cycles. At the same time, the CE does not represent a single clearly bounded model. It instead functions as a flexible framework that is interpreted and implemented differently across sectors and institutional contexts. These contextual dependencies become particularly visible in industry-

specific settings, such as textiles, which will be introduced more specifically later in the chapter.

While the CE works as a potential solution to the contested linear production and consumption model and a broad vision for changing material and value flows, its broad scope and flexibility also create ambiguity regarding how circularity should be prioritised, operationalised and evaluated in practice. One influential attempt to structure this ambition is the Butterfly Diagram, by the Ellen MacArthur Foundation (Ellen MacArthur Foundation 2021), which is introduced in the following section. By organising circular strategies hierarchically, the diagram works as a model for how circularity is expected to work.

1.1.3 The Butterfly Diagram

The most widely recognised visual articulation of this model is the Butterfly Diagram (Figure 1). Rather than functioning merely as an illustration, the diagram provides a generally accepted architecture of circularity (Ellen MacArthur Foundation 2021). It distinguishes between biological and technical cycles and organises circular strategies hierarchically according to value retention (Gatenholm et al. 2021; Murray et al. 2017; Medjdoub 2020). In the technical cycle, priority is given to maintaining and prolonging product use, followed by reuse, refurbishment, remanufacture and finally recycling (Sehnem et al. 2024; Murray et al. 2017). The closer a loop is to the user, the higher the retained value and the lower the need for additional material and energy inputs (Sehnem et al. 2024). In the biological cycle, renewable materials are returned to the biosphere through cascading uses and regeneration processes (Murray et al. 2017; Medjdoub 2020). Together, these loops represent an idealised system in which material leakage is minimised and resource productivity is maximised.

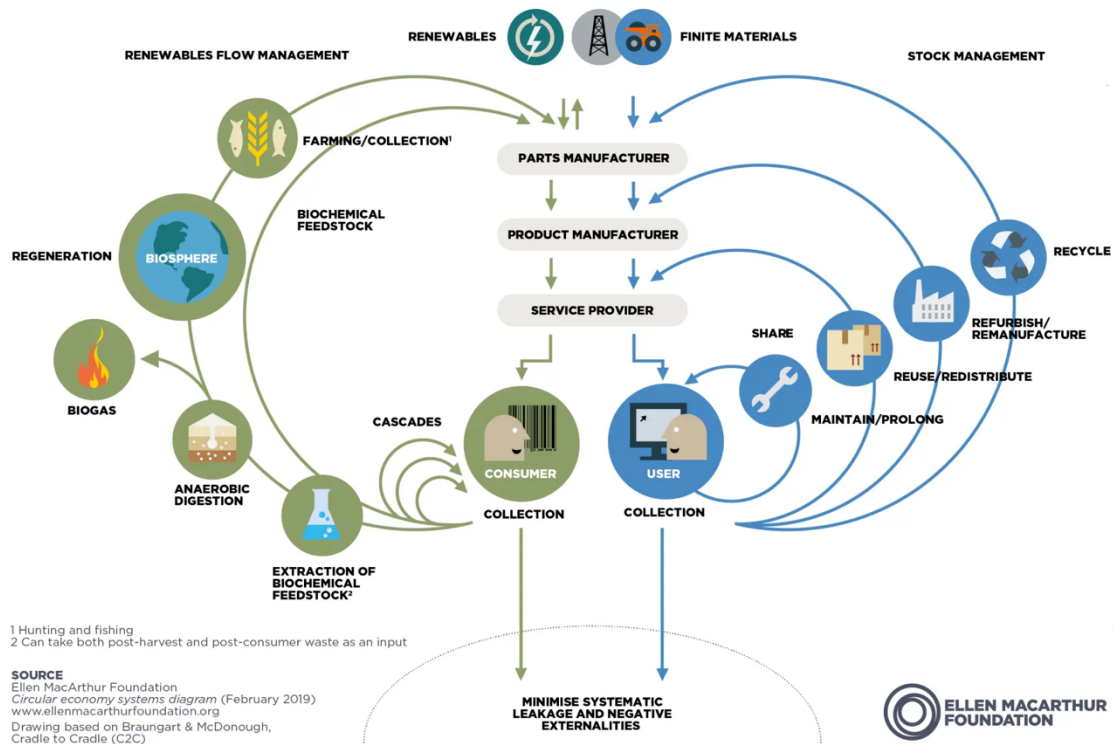


Figure 1: The Butterfly Diagram (Ellen MacArthur Foundation 2021)

Importantly, the Butterfly Diagram does not merely describe circular practices; it embeds normative assumptions about how economic systems should function (Gatenholm et al. 2021; Medjdoub 2020). It assumes the existence of reverse logistics infrastructures, coordination across supply chains, regulatory alignment, and economic incentives that favour higher-value loops over lower-value recovery options (Fischer and Pascucci 2017; Kazancoglu et al. 2020). It also presumes that actors possess the technical and organisational capacity to prioritise maintenance and reuse before recycling (Suarez-Visbal et al. 2024; Kazancoglu et al. 2020). In this sense, the diagram represents an aspirational model of systemic optimisation rather than an empirical description of existing industrial systems (Chen et al. 2021).

Recognising this distinction is analytically significant, as the transition to circularity is frequently non-linear and contested (Geels et al. 2017). While the Butterfly Diagram provides a coherent and influential framework for conceptualising circularity, it abstracts from the structural and institutional conditions under which such loops can realistically be implemented (Fischer and Pascucci 2017; Kazancoglu et al. 2020). It specifies what circularity should look

like, but not how different industries, organisational forms, or governance contexts shape which loops are prioritised, modified, or marginalised in practice (Chen et al. 2021; Fischer and Pascucci 2017). The extent to which economic activity can be decoupled from finite resource consumption therefore depends not only on the normative architecture of circularity, but on the constraints and risk conditions embedded within existing production systems (Gatenholm et al. 2021).

The Butterfly Diagram shows the systemic ambition of circularity by visualising interconnected material cycles and hierarchical value retention. However, to analyse how this system is expected to function in practice, it is necessary to deconstruct this architecture into more specific operational logics. Rather than treating the diagram as a self-explanatory model, the literature translates its structure into a set of guiding principles that indicate where and how circular interventions should occur, guided by theory. These principles provide a more analytically precise entry point for examining how circular strategies are framed, prioritised, and implemented across different economic contexts.

1.1.4 Core principles

While the Butterfly Diagram visualises the systemic architecture of circularity, its interconnected loops remain conceptually broad. The CE is characterised by conceptual breadth and interpretive flexibility, and much of the literature gathers around a set of core principles that specify how circularity is expected to be achieved in practice. These principles deconstruct the hierarchical loops shown in the diagram into operational logics that clarify where intervention should occur and which forms of circularity are prioritised. They therefore provide a more precise framework for examining how circular strategies are designed, justified, and implemented within specific economic contexts. The following section outlines these principles and clarifies their relevance for analysing how CE strategies are designed and implemented in practice.

In the literature, three core principles are commonly used: closing material loops, slowing resource flows, and retaining value. Together, these principles specify the mechanisms through

which the CE seeks to move away from linear production models and provide a framework for assessing the design and potential implications of CE initiatives.

The first principle, closing material loops, corresponds most directly to the outer recovery cycles depicted in the Butterfly Diagram. It concerns where materials end up once a product reaches end-of-use and seeks to prevent leakage from the economic system into landfill or incineration. The principle aims to return materials to production through reuse, refurbishment, remanufacturing and recycling (Gatenholm et al. 2021). The core logic is that waste is not an inevitable outcome, but a system design failure that can be reduced by establishing recovery infrastructures and reverse flows (Murray et al. 2017). Within the diagram's hierarchy, this principle captures the movement of materials back into technical or biological cycles, thereby reducing dependence on virgin inputs and improving resource efficiency (Trollman and Colwill 2020).

The second principle, slowing resource flows, reflects the inner loops of the technical cycle in the Butterfly Diagram, which prioritise maintaining products at the highest utility for as long as possible. Rather than focusing primarily on end-of-life recovery, this principle introduces a temporal dimension by extending product lifetimes through durability, maintenance, repair and reuse (Niinimäki et al. 2020c). In the diagram, loops closest to the user retain the most embedded value and require the least additional material and energy inputs. Slowing resource flows therefore seeks to reduce overall throughput by decreasing the frequency with which new products must be manufactured to deliver the same service (Gatenholm et al. 2021; Medjdoub 2020). This principle therefore depends strongly on consumption patterns and organisational incentives that influence replacement rates.

The third principle, retaining value, makes explicit the hierarchical logic embedded in the butterfly diagram. It emphasises not only that materials should circulate, but that they should circulate at the highest possible level of utility. Higher-value loops such as direct reuse, refurbishment, and remanufacturing are prioritised over lower-value options such as material recycling, which often involve quality degradation (Sehnem et al. 2024). In the diagram, this hierarchy is visually expressed by the proximity of loops to the user and the decreasing

embedded value as one moves outward. Retaining value therefore connects circularity to organisational strategy, requiring design choices, reverse logistics systems, and business models that make high-value recovery economically viable (Kazancoglu et al. 2020; Huerta Morales 2020). The extent to which value is retained at higher levels is a key factor in whether circularity meaningfully reduces the need for new production, rather than remaining largely symbolic.

Together, these principles articulate the core operational logic through which the CE seeks to change from linear production and consumption models to circular models. They clarify where and how circular interventions are expected to occur, whether by redirecting material flows, extending product life cycles and/or preserving value at higher levels across cycles. At the same time, the principles remain aspirational. They specify desired directions of change rather than guaranteeing how, or under which conditions these changes can be realised in practice. The extent to which these principles can be implemented depends on how they interact with existing economic, organisational and institutional contexts.

1.1.5 CE as a transition concept

While the Butterfly Diagram and the principles of closing material loops, slowing resource flows, and retaining value provide a coherent conceptual foundation for the CE, the literature increasingly emphasises that their practical realisation is complex and uncertain. Implementing CE principles requires substantial and coordinated changes to production systems, business models, and consumption patterns, many of which are stabilised by existing economic structures and dominant market logics. As a result, CE initiatives frequently encounter organisational, technological, and institutional constraints that limit their scope or lead to partial and selective adoption.

The CE is increasingly understood in literature as a transition process rather than a discrete set of practices or technical solutions. Implementing circular principles requires substantial changes to production systems, consumption patterns, and organisational routines, all of which are deeply embedded in existing economic and industrial structures (Suarez-Visbal et al. 2024; Niinimäki et al. 2020c). Production systems must shift away from linear logics of throughput

and disposal towards designs and processes that enable reuse, remanufacturing, and recycling, while consumption patterns must move towards longer product lifecycles and greater value retention (Chen et al. 2021). At the organisational level, these shifts demand changes in routines, capabilities, and decision-making processes, rather than isolated sustainability initiatives (Fischer and Pascucci 2017).

At the same time, the implementation of CE principles is shaped by broader socio-technical systems, institutional frameworks, and market dynamics (Geels et al. 2017; Lowe et al. 2025). The transition is therefore not driven by technological innovation alone, but also depends on governance arrangements, coordination among multiple actors, and the interaction between established regimes and emerging alternatives (Solis et al. 2025; Kazancoglu et al. 2020). Existing socio-technical regimes often stabilise linear production and consumption patterns, constraining the pace and direction of change, while local or niche initiatives may challenge dominant practices without necessarily transforming them at scale (Geels et al. 2017; Fischer and Pascucci 2017). As a result, CE transitions tend to produce uneven and uncertain outcomes across sectors and contexts (Lowe et al. 2025).

Differences in industry structure, market logics, and institutional conditions shape how CE principles are interpreted and implemented, leading to varying degrees of adoption and impact (Solis et al. 2025; Kazancoglu et al. 2020). In sectors characterised by high volumes and rapid turnover, such as textiles, circular strategies directly conflict with established business models, increasing the likelihood of partial adoption or limited effects (Bartkutė et al. 2023; Huerta Morales 2020). More broadly, transition processes are non-linear and contested, involving experimentation, negotiation and learning rather than predictable or uniform progress (Geels et al. 2017; Fischer and Pascucci 2017).

Understanding the CE as a contested transition process has important analytical implications (Geels et al. 2017). Rather than assuming circularity as an inevitable or linear progression, this perspective highlights the presence of risks that can obstruct, delay, or reshape implementation (Solis et al. 2025). These risks may arise from organisational routines, supply chain dependencies, market incentives, or institutional misalignments that favour linear practices.

A risk-based analytical approach is therefore well suited to examining CE initiatives, as it allows for the systematic identification of mechanisms that constrain transition processes and produce unintended or limited outcomes. This approach is especially relevant for analysing CE efforts in the textile sector, where dominant economic logics and global production structures create persistent tensions with circular ambitions.

Taken together, the literature conceptualises the CE as an ambitious but inherently uncertain transition process. The CE principles articulate clear directions for reconfiguring the linear production and consumption model through core principles relating to the destination of materials after use, the temporal dimension to products and their quality and utility, however their implementation unfolds within existing economic, organisational and institutional structures that shape how, and how far circular change can proceed. As a result, circular transitions tend to produce uneven outcomes across sectors, contexts and organisational settings. Understanding CE therefore required moving beyond abstract principles and transition frameworks to examine how circular ambitions interact with the specific structural conditions of their respective industries. The following section addresses this by situating the CE within the context of the textile industry, where traditional industry characteristics create tensions with circular objectives.

1.2 CE in the context of the textile industry

The textile industry, characterised by high production volumes, rapid product turnover, globalised supply chains, and intense competition, has become a prime candidate for CE transformation, making it a critical empirical context for examining the practical realisation of CE ambitions (Niinimäki et al. 2020a; European Commission 2022). While textiles are frequently highlighted by consumers, policymakers, and industry actors as a priority sector for circular adoption, the structural characteristics of the industry create persistent tensions with key circular objectives (Kazancoglu et al. 2020; Solis et al. 2025). This chapter situates the CE within the specific context of the textile industry by outlining its structural features and explaining why the sector provides important insights into how CE initiatives are shaped, constrained, and redirected in practice.

1.2.1 Structural characteristics of the global textile industry

To understand how CE initiatives unfold in the textile sector, it is necessary to understand the industry's underlying structural characteristics. The organisation of production and consumption, the governance of global value-chains and the competitive dynamics that shape firm behaviour all affect how CE initiatives are interpreted and implemented in practice. Rather than serving as a neutral basis, these structural features actively shape incentives, constrain strategic choices and influence the scale and effectiveness of circular interventions. The following section outlines the key structural characteristics of the global textile industry as a basis for analysing the specific tensions between traditional industry logics and CE ambitions.

The textile industry is one of the largest and most globally integrated consumer goods sectors, characterised by extensive cross-border production and trade linkages (Statista, n.d.; OECD 2013). The process from product design to final consumption involves a complex supply and value chain across international networks, including fibre production, textile manufacturing, garment assembly, logistics and retail across multiple countries (WTO et al. 2025; Gereffi and Stacey 2010). While entry barriers at the manufacturing stage are relatively low compared to many other manufacturing industries, largely due to labour-intensive production processes and limited capital requirements, competition and product differentiation are significantly more intense at the retail and brand level (OECD 2018; Gereffi 1999). A clear geographical separation exists between production and consumption, with higher-value activities such as design, branding and retail mainly located in high-income economies, while labour-intensive manufacturing tends to be concentrated in lower-cost regions, particularly in Asia and parts of Eastern Europe and North Africa (ILO 2019; OECD 2013).

A defining feature of the global textile industry is its organisation around buyer-driven global value chains (GVCs) (Gereffi and Stacey 2010). Retailers and brand owners typically coordinate production through networks of independent suppliers rather than through vertically integrated manufacturing structures (Gereffi 1994). This governance model allows lead firms to exploit international cost differentials, rapidly adjust sourcing strategies in response to demand fluctuations and scale production volumes with relative flexibility (Gereffi and Stacey

2010). At the same time, it limits direct control over upstream production processes due to the extended and fragmented supply networks increasing the firms' exposure to operational, social, and environmental risks (Barrientos et al. 2011; OECD 2018).

The textile industry is further distinguished by a pronounced temporal dimension. Product life cycles are short, fashion trends change rapidly, and collections are frequently renewed across seasons (Christopher et al. 2004). As a result, competitive performance depends heavily on firms' ability to manage speed, timing, and inventory flows efficiently (Barnes and Lea-Greenwood 2006; Christopher et al. 2004). Logistics, forecasting, and inventory management therefore play a central strategic role, as firms seek to minimise lead times and respond quickly to shifting consumer preferences (Cachon and Swinney 2011; Miroudot and Cadestin 2017).

From a market perspective, apparel consumption is largely driven by replacement demand rather than population growth. Purchases are shaped by changing trends, seasonality, and social norms, rather than by functional necessity alone (Niinimäki et al. 2020b; McNeill and Moore 2015). In relatively stable and mature consumer markets, this contributes to intensified competition among firms, which compete primarily on price positioning, brand differentiation, and perceived novelty (OECD 2018; UNEP 2023). These structural characteristics collectively reinforce high production volumes and rapid product turnover within the industry.

These structural characteristics define a textile industry organised around global fragmentation, buyer-driven governance and a strong emphasis on speed, flexibility, and scale. The separation of production and consumption, combined with short product life cycles and intense competition at the retail and brand level, reinforces linear logics of high throughput and frequent replacement. While these structures have enabled efficiency and responsiveness within global markets, they also shape the conditions under which CE initiatives are introduced, influencing their scope, design, and potential effectiveness. Understanding these structural foundations is essential for analysing how circular ambitions are mediated in practice and provides the basis for examining the competitive and consumption dynamics that further sustain high volumes and rapid turnover within the industry.

1.2.2 Competition and consumption dynamics

Building on these structural foundations, attention now turns to how competition and consumption dynamics operate within the textile industry. Rather than being driven primarily by functional demand, competitive strategies in the sector are closely intertwined with consumption patterns that reward novelty, speed, and frequent replacement (Christopher et al. 2004). These dynamics translate structural conditions into market behaviour, shaping how value is created, how products are differentiated and how turnover is sustained (Cachon and Swinney 2011). Examining competition and consumption dynamics is therefore essential for understanding why high volumes and rapid product cycles persist in the textile industry, and how these patterns condition the possibilities for CE implementation.

The competitive dynamics of the textile and apparel industry are closely intertwined with its consumption patterns (Christopher et al. 2004). Fashion operates not only as a functional market for clothing, but also as a cultural and symbolic system in which garments communicate identity, status, and belonging (McNeill and Moore 2015; MarketLine 2025). As a result, consumption is driven by aesthetic change and social signalling as much as by material need (McNeill and Moore 2015). This symbolic dimension amplifies the importance of novelty and variety, reinforcing frequent replacement cycles and short product lifespans.

In this context, firms face strong incentives to prioritise speed, flexibility, and cost efficiency (Bartkutė et al. 2023; Christopher et al. 2004). Rapid trend diffusion and shortened fashion cycles reduce the relevance of long-term product standardisation, while increasing the value of responsiveness and assortment renewal (Barnes and Lea-Greenwood 2006). Competitive advantage is therefore closely linked to firms' ability to bring new products to market quickly and to manage high volumes across complex distribution networks (Christopher et al. 2004).

These dynamics are particularly pronounced in high-income consumer markets, where basic clothing needs are largely satisfied and demand is sustained through variation rather than necessity (MarketLine 2025; Barnes and Lea-Greenwood 2006). Even as market growth in volume terms slows, competitive pressure remains intense, as firms seek to maintain sales through increased product turnover, marketing, and price competition (Niinimäki et al. 2020c).

This emphasis on speed and volume translates competitive pressure into shorter product lifecycles and higher replacement rates at the consumption level.

Competition combined with consumption dynamics in the textile industry reinforce business models that are centred on frequent replacement, rapid turnover and high volumes. The symbolic and cultural dimensions of fashion, combined with intense competitive pressure and the prioritisation of speed and responsiveness, sustain demand patterns beyond functional need. These dynamics explain broader structural conditions as everyday market practices, stabilising linear logics of throughput and disposability. As a result, even as CE initiatives gain legitimacy, they are introduced into a competitive environment that continues to reward novelty, scale and rapid product cycles. Understanding these dynamics is therefore critical for assessing how circular strategies are accommodated, limited or redirected within the textile sector.

1.2.3 CE transition constraints in the textile industry

While the textile industry is frequently presented as a prime candidate for CE interventions (Niinimäki et al. 2020b), its dominant business models directly conflict with CE principles emphasising durability, reduced throughput and extended use (Sehnm et al. 2024). The organisation of textile production and consumption is shaped by high volumes, rapid turnover and global fragmentation, which complicates the translation of circular ambitions into practice (Christopher et al. 2004). This section examines the key transition challenges facing the textile industry by identifying the structural, organisational and institutional conditions that generate persistent tensions between CE principles and prevailing industry practices.

A first set of challenges arises from the market and consumption dynamics that characterise the textile industry (Solis et al. 2025). In particular, the fast fashion model is organised around frequent style changes, short product lifecycles and low price points, which encourage high replacement rates and sustained growth in sales volumes (Bartkutė et al. 2023; Christopher et al. 2004). Consumer demand in this context is driven less by functional need than by novelty, trend responsiveness and affordability, reinforcing patterns of frequent disposal and repurchase (Bartkutė et al. 2023; McNeill and Moore 2015). These consumption patterns stand in direct tension with circular ambitions to extend product lifetimes, reduce material throughput and

slow resource flows. As a result, even when circular practices introduced, they often coexist with continued growth in overall consumption and production volumes (Lowe et al. 2025).

A second set of challenges is rooted in the production structures and GVC organisation of the textile industry (Kazancoglu et al. 2020). Textile production is typically coordinated through geographically dispersed and fragmented value chains, involving multiple stages of fibre production, textile manufacturing, garment assembly and retail across different regions. Within these buyer-driven GVCs, lead firms have limited direct control over upstream production processes, relying instead on networks of independent suppliers (Chen et al. 2021). This fragmentation complicates the consistent implementation of circular practices across suppliers, particularly where changes in material composition, production processes or end-of-life handling are required (Barrientos et al. 2011). Although technological solutions for recycling and material recovery are developing, their application in the textile industry remains constrained by fibre blends, quality degradation and insufficient collection and sorting infrastructures (Juanga-Labayen et al. 2022). Under these conditions circular strategies in the textile industry frequently remain limited to specific product categories, pilot project or downstream initiatives rather than being embedded across core production systems (Bartkutė et al. 2023).

Organisational conditions within textile firms further shape how circular ambitions are pursued (Kazancoglu et al. 2020; Suarez-Visbal et al. 2024). Existing investments in production systems, logistics and sourcing arrangements are commonly optimised for speed, flexibility and cost efficiency, reflecting the competitive pressures of the industry (Christopher et al. 2004). These investments create asset-specific configurations that favour short lead times and high turnover, making significant changes to product design, sourcing practices or reverse logistics costly and uncertain (Kazancoglu et al. 2020). Empirical studies show that firms in the textile industry often introduce selected circular initiatives while leaving core business models, organisational routines and performance metrics largely unchanged (Suarez-Visbal et al. 2024). As a result, circular practices tend to be layered onto existing linear systems rather than replacing them, reinforcing incremental and partial forms of change (Fischer and Pascucci 2017; Sehnem et al. 2024).

Finally, institutional and regulatory conditions contribute to the complexity of CE implementation in the textile industry (Jones and Leonas 2025). While policy frameworks increasingly articulate circular ambitions, textile firms often operate in regulatory environments characterised by fragmented governance, limited economic incentives and unclear allocation of responsibility across supply chains (Kazancoglu et al. 2020). Regulatory approaches to textile waste, extended producer responsibility (EPR) and product standards vary across jurisdictions, creating uneven compliance requirements and expectations for firms operating across multiple markets (Jones and Leonas 2025; Suarez-Visbal et al. 2024). These characteristics produce an implementation environment marked by uncertainty and coordination challenges, particularly for initiatives that depend on stable infrastructures for collection, sorting, reuse and recycling. Empirical analyses of CE policy implementation in the EU further indicate that regulatory measures can interact with established industry structures in ways that encourage selective or compliance-oriented responses rather than uniform change (Solis et al. 2025).

Taken together, these challenges illustrate why the textile industry constitutes a particularly difficult context for the implementation of CE principles. Market dynamics oriented towards novelty and volume, fragmented global production structures, organisational configurations optimised for speed and cost efficiency and uneven regulatory environments interact to shape how CE initiatives are introduced and developed. These conditions help explain why CE outcomes in the textile industry often remain limited in scope or scale and highlight the need for an analytical approach that can systematically examine how such conditions influence the design, prioritisation, and effectiveness of CE initiatives.

1.2.4 Institutional and market context: Norway in a Scandinavian perspective

To better understand how CE initiatives are shaped in practice, it is useful to examine them within a specific institutional and market context (Geels et al. 2017; Suarez-Visbal et al. 2024). This section focuses on Norway, placed within a broader Scandinavian perspective, as a relevant setting for analysing how circular ambitions interact with established consumer markets and policy environments (MarketLine 2025; Reyes 2021). Scandinavian countries are

often described as leaders in sustainability and CE policy, but they also have high levels of apparel consumption and strong integration into global textile markets (Reyes 2021; CBI 2025; Statistisk Sentralbyrå 2023). Examining Norway within this regional context helps clarify how institutional conditions, market structures and consumption patterns influence the possibilities and limitations of CE initiatives (Reyes 2021; MarketLine 2025). Due to limited peer-reviewed research focusing specifically on the Norwegian apparel market, this section draws on official statistics and policy reports on mainly the Norwegian market, but also the broader Scandinavian market to establish the empirical context. Scandinavia is defined as Norway, Sweden and Denmark.

Within the broader European textile and apparel industry, Scandinavia is characterised by high income levels, advanced retail infrastructures, and a strong dependence on international trade and distribution networks (Statistisk Sentralbyrå, n.d.-a; Eurostat 2025b; Paes et al. 2024). Although the region has a relatively small population, it constitutes an economically significant market for apparel due to consumers' high purchasing power and relatively high per-capita expenditure on clothing and footwear (CBI 2025).

The Scandinavian fashion market is particularly relevant as an empirical context due to the coexistence of high consumption levels and strong societal expectations regarding environmental responsibility and sustainability (Statistisk Sentralbyrå 2022; Eurostat 2025a; Niinimäki et al. 2020c). Nordic countries consistently report high levels of environmental awareness among consumers, alongside policy ambitions that position the region as a frontrunner in sustainability and CE initiatives (Reyes 2021; Klima- og miljødepartementet and Nærings- og fiskeridepartementet 2024; European Commission 2022). At the same time, apparel consumption patterns remain largely aligned with fast-fashion logics, creating tensions between stated sustainability values and actual market behaviour (McNeill and Moore 2015).

The Scandinavian countries have mature consumption patterns, where basic consumer needs are largely satisfied and demand is primarily driven by product replacement, variation and symbolic or social value rather than necessity (Statistisk Sentralbyrå 2023; Niinimäki et al. 2020c). Household incomes in Scandinavia are among the highest in Europe, consistently

ranking near the top in GDP per capita terms, which supports relatively high levels of consumption despite market maturity (Eurostat 2025c). At the same time, overall volume growth in apparel consumption has slowed, indicating market saturation rather than continued expansion (Report Linker 2024).

Despite high income levels, the Scandinavian fashion retail environment is characterised by strong price transparency and intense competition, particularly due to the widespread adoption of digital retail channels (Reyes 2021; MarketLine 2025; CBI 2025). Scandinavia demonstrates high levels of digital literacy and well-developed digital infrastructure, which have made online shopping an integral component of consumption patterns (European Commission 2024). Digitalisation has reduced search and switching costs for consumers, facilitating price comparison and access to broader assortments across national borders (Statistisk Sentralbyrå, n.d.-b). As a result, fashion retailers operating in Scandinavia face structural exposure to international competition, where price comparability and cross-border e-commerce are persistent features of the market.

Scandinavian textile and apparel markets are highly dependent on imports to satisfy domestic demand (Statistisk Sentralbyrå, n.d.-a). Local manufacturing capacity is limited, and most retailers rely on GVCs for production, with manufacturing predominantly located in lower-cost regions outside Europe (Niinimäki et al. 2020c; OECD 2013). Domestic activities are typically concentrated in design, branding, product development, marketing and retail functions (Gereffi 1994; OECD 2013). The dispersion of activities across multiple regions requires extensive coordination between suppliers and production stages and entails a strong reliance on international transport, logistics and distribution systems.

Situating the analysis in the Norwegian and broader Scandinavian context helps clarify why CE initiatives in the textile industry often produce mixed or limited outcomes. The combination of high consumption levels, strong sustainability expectations and deep integration into GVCs creates a setting in which circular ambitions are visible and widely supported, yet difficult to realise in practice. This context is therefore particularly useful for examining how CE initiatives are shaped by market conditions and institutional settings, and for understanding why their

effectiveness may differ from their stated goals. By grounding the analysis in this specific environment, the study is better positioned to explore how CE initiatives are constrained, redirected, or adapted when implemented within mature consumer markets.

1.3 Risk in sustainability and transition studies

The preceding sections have conceptualised CE in the textile industry as a contested and non-linear transition characterised by ambitious principles and persistent implementation difficulties. However, describing CE primarily as a transition challenge does not fully explain why implementation consistently stabilises in selective and bounded forms. When circular ambitions are translated into organisational practice, they generate exposure across multiple dimensions. Firms must navigate infrastructural dependencies, regulatory uncertainty, organisational capacity limits and market expectations at the same time. CE implementation therefore unfolds within conditions that can threaten economic viability, regulatory compliance, reputational legitimacy and operational stability.

Understanding implementation under these conditions requires an analytical lens that captures how such exposure shapes strategic choices. Risk provides that lens. In this study, risk is not understood as calculable probability or firm-level management technique, but as a structural condition that emerges when circular ambitions encounter stabilised economic, organisational and institutional systems. Risk becomes visible where CE initiatives meet dominant market logics, fragmented value chains, evolving governance frameworks and established organisational routines. Rather than representing failure or deviation, risk is treated as an inherent feature of CE transition that conditions how strategies are prioritised, sequenced and operationalised in practice.

1.3.1 Risk as an inherent feature of CE transitions

This conceptualisation aligns with critical perspectives in the CE literature that highlight the gap between conceptual ambition and realised outcomes. While CE frameworks promise reduced resource use and environmental impact, empirical and theoretical research demonstrates that such outcomes are not guaranteed (Lowe et al. 2025). Studies show that

circular strategies can in fact generate CE rebound (CER) effects, where efficiency-gains at the product or process level are cancelled out by increased consumption or larger production volumes at the system level (Lowe et al. 2025). CER illustrates one mechanism through which risk materialises in CE transitions, showing how circular initiatives may unintentionally reproduce or even intensify linear patterns rather than disrupt them. Rather than representing implementation failure, these dynamics reveal how circular strategies operate within market systems that shape and constrain their effects.

Risk becomes more visible when CE initiatives are situated within broader sustainability transition processes. Transition studies emphasise that systemic change unfolds within stabilised socio-technical regimes that reproduce dominant production and consumption patterns (Geels et al. 2017). When circular ambitions are introduced into such regimes, they encounter entrenched infrastructures, institutional arrangements and market logics that shape and constrain their trajectory. Risk therefore arises not as an implementation failure, but as a structural feature of transition processes in which transformative objectives interact with stabilised systems.

1.3.2 Risk as a multi-level condition shaping CE transitions

At the organisational level, research highlights how routines, capabilities and performance metrics influence the implementation of CE initiatives (Kazancoglu et al. 2020; Suarez-Visbal et al. 2024). Transition towards CE requires changes in organisational practices that are often a big part of existing business models (Fischer and Pascucci 2017). When CE initiatives conflict with established routines or short-term performance priorities, firms can adopt selective initiatives rather than more transformative change (Bartkutė et al. 2023; Suarez-Visbal et al. 2024). These outcomes are not necessarily the result of managerial failure but reflect organisational risk arising from path dependence and the costs associated with strategic reorientation (Bartkutė et al. 2023).

Taken together, the literature suggests that risk in CE transitions is not a single or uniform phenomenon, but emerges through multiple, interacting conditions that shape how initiatives are designed, implemented and sustained (Kazancoglu et al. 2020; Solis et al. 2025). These

conditions operate at different levels, including markets, organisations and institutional environments, and help explain why CE initiatives often produce uneven and varied outcomes (Geels et al. 2017; Suarez-Visbal et al. 2024). Understanding CE implementation therefore requires attention to how such risks shape different implementation trajectories across contexts.

While risk in CE transitions comes from interacting conditions across markets, organisations and institutional environments, analysing its role in implementation requires analytical differentiation. Risk does not operate through one single mechanism, and neither does it constrain CE initiatives in uniform ways (Solis et al. 2025). Instead, different constraints affect implementation through what can be seen as pathways that influence how CE ambitions are prioritised, designed and scaled in practice. To capture this variation without reducing risk to one single explanatory factor, the following section develops a set of analytically distinct risk categories. These do not represent isolated or independent risks but work as analytical lenses that specify how different structural and institutional conditions shape the implementation of CE initiatives.

1.3.3 CE principles and points of vulnerability

While the principles of slowing, closing and retaining resource flows articulate the core ambitions of the CE (Murray et al. 2017; Sehnem et al. 2024), they do not specify the conditions under which they can be realised in practice. Each principle assumes particular configurations of markets, organisations, infrastructures and governance arrangements that are often only partially present in existing production and consumption systems. As a result, the translation of CE principles into concrete initiatives exposes different points of vulnerability, where ambitions meet constraints.

Efforts to slow resource flows are vulnerable where production and consumption systems are structured around rapid turnover, trend-driven demand and revenue models tied to volume. Even where firms express commitment to durability or reuse, these ambitions may conflict with consumer replacement cycles, competitive pressures and internal performance metrics oriented towards speed and scale. The feasibility of slowing strategies is therefore strongly

conditioned by market dynamics and organisational incentives that firms may have limited capacity to alter (McNeill and Moore 2015; Niinimäki et al. 2020c).

Initiatives aimed at closing material loops are vulnerable in a different way, as they rely on systems and infrastructures that typically extend beyond the boundaries of individual firms. Closing loops requires coordination across supply chains, access to collection and sorting systems and regulatory frameworks that allocate responsibility for end-of-life management. Fragmentation in value chains, technical limitations in recycling and uncertainty surrounding regulatory requirements can all constrain the scope and effectiveness of loop-closing initiatives, even where circular intentions are present (Geels et al. 2017; Juanga-Labayen et al. 2022).

Retaining value at higher levels introduces vulnerabilities linked to both organisational capabilities and external evaluation. Strategies such as reuse, refurbishment or remanufacturing require investments in reverse logistics, design-for-recovery and business models that may sit uneasily with existing asset structures and cost logics. At the same time, firms operate under legitimacy pressures that can encourage the prioritisation of highly visible but lower-impact options, such as recycling, over deeper organisational change. As a result, value-retention strategies may be selectively adopted or bounded in ways that limit their transformative potential (Kazancoglu et al. 2020; Lowe et al. 2025).

Together, these vulnerabilities highlight that circular principles do not fail because of insufficient ambition, but because they interact unevenly with existing conditions that shape what firms can prioritise, implement and sustain. The principles indicate what circularity requires, while the associated vulnerabilities point to where and why implementation becomes constrained in practice. These points of vulnerability provide the analytical entry point for conceptualising risk as a set of mechanisms through which structural, organisational, institutional and reputational conditions shape CE implementation.

1.3.4 Risk categories

Building on the discussion of CE principles and their associated points of vulnerability, this section reframes the previously identified industry conditions as analytically distinct risk mechanisms. Rather than repeating empirical challenges in the textile industry, the purpose of this section is to explain how those conditions operate as constraints that shape the design, prioritisation and scaling of CE initiatives in practice. The risk categories do not represent independent or competing explanations or discrete events, but work as interacting mechanisms through which structural, organisational, institutional and reputational conditions affect implementation pathways. By specifying how these mechanisms operate, the framework provides an analytical basis for explaining variation in CE implementation within the textile industry.

A first category is structural risk, which refers to conditions that lie largely outside firm-level discretion and systematically constrain the feasibility of circular strategies. In the textile industry, demand patterns structured around novelty, affordability and rapid trend cycles operate as a structural mechanism that limits the viability of strategies aimed at slowing resource flows (McNeill and Moore 2015; Niinimäki et al. 2020c). This produces a pathway in which CE initiatives are more likely to focus on efficiency-oriented measures than on absolute reductions in throughput. Within this context, CER functions as a key risk mechanism, with efficiency gains achieved through reuse, recycling or material substitution reduces per-unit environmental impacts without altering the underlying drivers of consumption and production growth. As a result, circular practices may coexist with, or even reinforce, linear growth dynamics rather than displacing them (Lowe et al. 2025).

Structural risk is further reinforced through the organisation of textile production in globally fragmented, buyer-driven value chains. In this configuration, fragmented production control operates as a mechanism that constrains firms' capacity to coordinate circular practices beyond organisational boundaries (Gereffi 1994; Barrientos et al. 2011). CE initiatives that require changes in material selection, production processes, or end-of-life management depend on coordination across multiple actors, yet coordination like this is challenging under current value chain governance structures. When combined with technical and infrastructural limitations, such as fibre blends, material quality degradation and insufficient collection and sorting

systems, this interaction channels CE initiatives toward small-scale or pilot applications rather than system-wide transformation (Juanga-Labayen et al. 2022).

A second category is organisational risk, which arises from firms' existing business models, routines and asset structures. In the textile industry, organisational configurations optimised for speed, cost efficiency and high turnover function as mechanisms of path dependence (Kazancoglu et al. 2020). These mechanisms increase the perceived risk of adopting circular strategies that challenge established performance metrics or revenue models. Research on sustainability transitions shows how organisational routines and decision-making processes can stabilise existing practices even in the presence of explicit sustainability commitments (Fischer and Pascucci 2017). As a result, CE initiatives are often integrated into existing organisational structures in ways that minimise disruption, producing selective or incremental adoption. Organisational risk therefore shapes not only whether CE initiatives are adopted, but also their depth, scope and integration into core operations.

Institutional and regulatory risk reflects how governance environments condition implementation by shaping incentives, expectations and coordination requirements. In the textile industry, fragmented and uneven regulatory frameworks operate as mechanisms that generate uncertainty around responsibility allocation and future compliance obligations (Kazancoglu et al. 2020; Geels et al. 2017). In GVCs, regulatory responsibilities are often distributed across jurisdictions, further complicating implementation and enforcement. This uncertainty discourages long-term investment in circular infrastructures and favours strategies oriented toward minimal compliance or symbolic alignment with policy goals rather than transformative change (Suarez-Visbal et al. 2024). Institutional risk therefore shapes firms' strategic choices and contributes to uneven CE implementation outcomes across markets and regions.

Finally, reputational risk arises from external legitimacy pressures rather than from internal organisational constraints. In the textile industry, heightened public scrutiny and stakeholder expectations regarding sustainability performance operate as a mechanism that shapes how CE initiatives are framed and prioritised (Niinimäki et al. 2020c). While legitimacy pressures can

motivate experimentation with CE practices, they can also encourage the selective adoption of highly visible initiatives with limited material impact. Under such conditions, CE practices may be framed as mechanisms of market legitimacy rather than as drivers of systemic change (Lowe et al. 2025). Reputational risk therefore constrains organisational choice by shaping what is perceived as legitimate or credible action, rather than merely influencing how actions are communicated.

Together, these risk categories specify how the conditions identified earlier function as mechanisms that shape CE implementation in the textile industry. Structural risks define the external environment in which firms operate, organisational risks mediate internal responses, institutional risks shape the rules and incentives governing action and reputational risks condition external evaluation and legitimacy. While analytically distinct, these mechanisms interact and reinforce one another, producing different implementation pathways even among firms operating within similar markets. This framework provides the analytical baseline for explaining variation in CE implementation and directly informs the formulation of the research question that follows. To clarify how the risk framework is applied analytically in the empirical analysis, Table 1 summarises the core sources, mechanisms and empirical manifestations associated with each risk category.

Table 1: Risk categories

Risk category	Primary source of constraint	Mechanism of risk	How it constrains CE initiatives	Typical empirical manifestations
Structural risk	Market demand dynamics; global value-chain organisation; infrastructural limits	High throughput consumption, CER, fragmented production control	Channels CE toward efficiency gains and small-scale initiatives rather than absolute reductions and system-wide change	Emphasis on recycling over reduction; CE pilots limited to specific product lines; coexistence of CE initiatives with volume growth
Organisational risk	Existing business models, routines, and asset specificity	Path dependency and misalignment with performance metrics	Limits firms' willingness and capacity to adopt CE strategies that challenge cost, speed, or turnover logics	Selective integration of CE into existing operations; durability framed as niche or premium strategy
Institutional risk	Fragmented, uncertain, or	Regulatory uncertainty and	Encourages minimal	Reliance on voluntary

	misaligned governance frameworks	weak incentives for long-term investment	compliance or symbolic adoption rather than transformative CE strategies	standards; delayed investment in circular infrastructure; uneven implementation across markets
Reputational risk	Heightened legitimacy pressures and stakeholder expectations	Symbolic adoption and communication-oriented CE practices	Prioritises visibility and legitimacy over material impact and systemic change	Marketing-focused CE initiatives; emphasis on storytelling and certification rather than scale or throughput reduction

By relating the risk framework to the core CE principles, it becomes possible to explain why certain circular strategies face greater constraints in practice. Efforts to slow resource flows activate a specific vulnerability pathway, as they depend on organisational incentives and consumer replacement cycles that are closely tied to volume-oriented business models. As a result, slowing strategies are particularly exposed to structural risks arising from demand for novelty and throughput, as well as organisational risks linked to performance metrics and revenue models that prioritise speed and scale.

Initiatives aimed at closing material loops rely on supply chain coordination and recovery infrastructures that extend beyond the boundaries of individual firms. This dependence exposes loop-closing strategies primarily to structural risks arising from fragmented value chains and technical limitations. At the same time, it generates institutional risks linked to responsibility allocation, regulatory design and the availability of supporting infrastructures. Even where firms express circular intent, these conditions can constrain the feasibility and scalability of material recovery initiatives.

Strategies focused on retaining value at higher levels require firms to prioritise reuse, refurbishment or remanufacturing over lower-value options such as downcycling, and to invest in reverse logistics and design-for-reuse. These requirements increase exposure to organisational risks linked to capabilities and asset specificity, as well as to reputational risks, where legitimacy pressures may encourage the prioritisation of highly visible but lower-impact options over deeper changes to product strategy.

Taken together, the CE principles specify what circularity requires, while the risk categories explain why those requirements become difficult to realise under existing market, organisational, institutional and legitimacy conditions. CE initiatives are therefore rarely shaped by a single form of risk in isolation. Instead, structural, organisational, institutional and reputational risks interact and reinforce one another, producing different implementation pathways even among firms operating in similar markets. Explaining variation in CE implementation thus requires attention to how multiple constraints combine in practice. This perspective provides the analytical basis for the research question that follows.

1.4 Research question

This section develops the research question (RQ) and explains how it follows from the theoretical framework established in the preceding sections. The aim is to ensure that the RQ functions as a synthesis of the core theoretical arguments and clearly reflects the analytical focus of the study.

The theoretical framework conceptualises CE implementation in the textile industry as an uncertain and contested transition rather than as a linear shift from a take-make-dispose model to a circular system. CE initiatives are introduced within fast-fashion business models, GVCs and institutional environments that are still largely aligned with linear logics of growth and throughput. As a result, implementation is conditioned by stabilised organisational routines, cost structures, regulatory arrangements and market expectations. Within this context, risk is conceptualised as a systemic condition that emerges from the interaction between CE ambitions and these stabilised economic, organisational and institutional structures. Risk therefore captures the mechanisms through which tensions between CE principles and existing systems shape what firms are able to prioritise, implement and sustain in practice.

Building on this perspective, CE implementation is understood as the outcome of interactions between core circular principles (slowing, closing and retaining resource flows), and multiple interacting forms of risk. Structural, organisational, institutional and reputational risks do not

only follow from CE initiatives but actively shape their design, scope and implementation pathways. Variation in CE implementation can therefore be explained by how firms navigate configurations of risk, rather than by differences in sustainability ambitions or technological feasibility alone.

While much of existing literature focuses on identifying or categorising CE initiatives and studying potential CER-effects and other implementation effects, such descriptive mapping offers limited explanatory leverage in understanding why certain initiatives are prioritised, constrained or only partially realised. The present study therefore adopts a mechanism-oriented approach that treats risk as the central analytical lens for explaining how broader structural and institutional conditions translate into organisational practice. This shift from description to explanation motivated the formulation of the RQ:

RQ: How do structural, organisational, institutional and reputational risks shape the implementation of CE, as observed through a qualitative case study in the textile industry?

This formulation positions CE initiatives as the empirical object of analysis and risk as the key mechanism through which constraints and trade-offs become visible in implementation. Importantly, the RQ does not presuppose either successful or failed implementation, allowing the analysis to capture both enabling and constraining effects of risk.

The RQ is addressed through a qualitative case study, supported by analytically oriented sub-questions (SQs). These SQs examine how different categories of risk manifest across specific CE initiatives and principles, and how firms navigate, accommodate, or reproduce these risks in practice. To ensure consistency, the empirical analysis focuses on a single focal firm, the Varner Group.

SQ1: What CE initiatives does the case firm, Varner, pursue and how are they framed and operationalised?

SQ2: What key risks emerge in the implementation of these initiatives within the textile industry context?

SQ3: How do these risks combine to produce distinct CE transition pathways in practice?

Together, the RQ and SQs provide a coherent bridge between the theoretical framework, methodological approach, and empirical analysis, ensuring internal consistency across the thesis.

2. Methodology

Chapter 1 conceptualised the CE in the textile industry as a contested transition shaped by interacting risks. Rather than treating CE as a fixed set of solutions, the chapter argued that CE initiatives are shaped by the structures in which they are embedded. This chapter builds on that framework and explains how it is examined empirically.

The purpose of this chapter is to operationalise the risk-based framework that was developed in Chapter 1. It explains how risk is studied in practice and how the empirical material is used to analyse the implementation of CE initiatives in the textile industry, where risk is treated as a structural condition with influence over the design, prioritisation and implementation. This chapter therefore focuses on how risks become visible in practice. It examines patterns in CE initiatives, organisational choices and implementation pathways, and shows how these patterns reflect different forms of structural, organisational, institutional and reputational constraints. By linking empirical observations directly to the conceptual framework, the chapter ensures continuity between theory and analysis.

The aim is not only to describe methods, but to clarify how the empirical strategy supports the RQ. By explaining how initiatives are identified, coded and analysed in relation to specific risk categories, the chapter establishes the analytical lens used in the study to allow for a seamless journey through the analysis without having to revisit earlier theoretical assumptions.

The chapter proceeds as follows. Section 2.1 outlines the qualitative case study design and justifies the selection of the case. Section 2.2 describes the empirical material, including document selection, timeframe and analytical boundaries. Section 2.3 details the analytical framework, coding strategy and construction of CE implementation pathways, which constitute the main analytical outputs of the study. Sections 2.4 and 2.5 address limitations and analytical reflexivity, respectively. The chapter concludes in Section 2.6 by summarising the methodological approach and preparing the transition to the empirical analysis.

2.1 Research design

2.1.1 Qualitative theory-informed case study

This study adopts a qualitative single-case study design, made to the analytical objective of examining how CE initiatives are shaped by structural, organisational, institutional and reputational risks in the textile industry. The purpose of the case study is not to describe CE practices or assess performance, but to analyse how risk operates as a condition that shapes how CE initiatives are articulated, prioritised and bounded in practice.

A qualitative case study is appropriate because the RQ is explanatory and process oriented. It asks how structural, organisational, institutional and reputational risks shape the implementation of CE initiatives in the textile industry, rather than if the initiatives succeed or fail. The aim is not to measure outcomes, but to understand processes, interactions and the mechanisms through which outcomes are produced. Qualitative research is particularly suited to this purpose, as it allows the researcher to focus on explanation rather than on the identification of statistical patterns (Maxwell 2012).

The choice of a single-case design is deliberate. Rather than aiming for representativeness, the study prioritises analytical depth and internal coherence. Case study research is not sampling research, and its value does not lie in representativeness. Instead, it produces detailed, context-dependent knowledge that supports understanding of how social processes unfold in practice (Stake 1995). Single-case studies are particularly valuable when the case offers rich empirical material through which theoretical mechanisms can be examined in detail (Flyvbjerg 2006). In this study, the case is used to investigate how risk becomes visible through organisational discourse and documented practice, not to make claims about the normality of the firm or to generalise.

Document analysis is central to this design. Because risk is conceptualised as a structural condition, it is expected to become visible not mainly through internal decision-making data, but through how CE initiatives are framed, justified, qualified and constrained in public-facing documents. Analysing sustainability reports, corporate communications and related texts

makes it possible to trace how organisations articulate CE ambitions in relation to identified constraints, uncertainties and legitimacy pressures. In this sense, documents are not treated as neutral records, but as places where risk is being negotiated and interpreted.

This design aligns directly with the theoretical framework that was developed in Chapter 1. It allows the study to examine how risk shapes CE implementation through discourse, prioritisation and framing while maintaining attention to structural conditions that limit organisational choice. On this basis, the following section explains how the specific case was selected to provide empirical evidence on these analytical concerns.

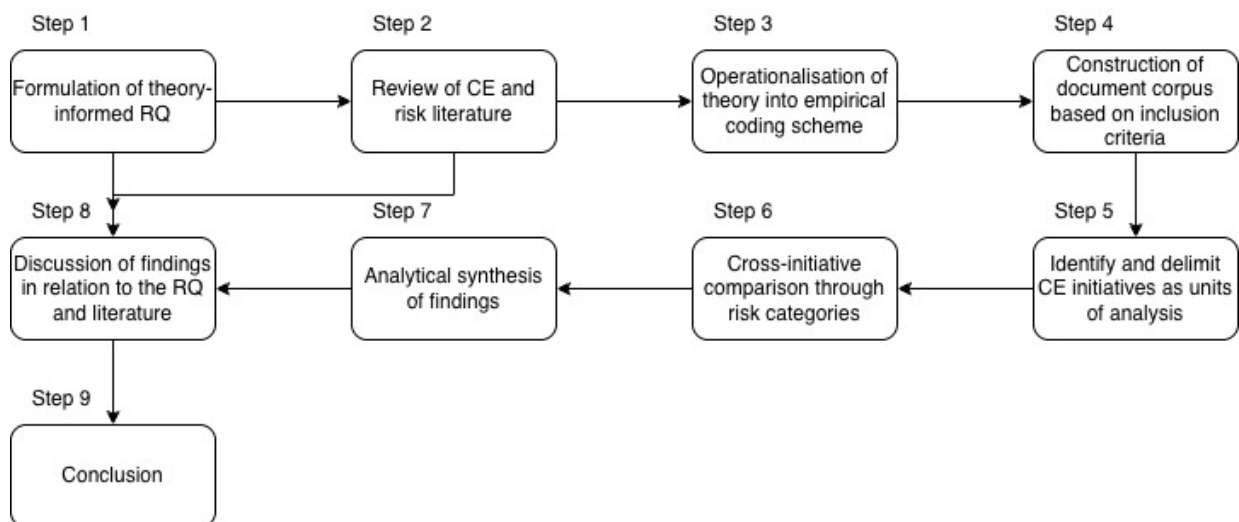


Figure 2: Illustration of the analytical research design and procedure

Figure 2 summarises the analytical research design of the study, illustrating how the RQ is translated into a theory-informed document analysis and comparative synthesis. The figure does not represent a linear procedure but an analytical logic guiding the organisation of the empirical work.

2.1.2 Case selection and scope

The case selected for this study is the Varner Group. The choice of this case is guided by analytical relevance rather than representativeness. In qualitative case study research, cases are

selected because they are particularly informative for the RQ, not because they reflect an average or typical situation. The aim is to study a case that allows close examination of the processes and mechanisms of interest (Stake 1995; Flyvbjerg 2006).

The Varner Group is analytically relevant because it operates at the intersection of several conditions that are central to the theoretical framework developed in Chapter 1. The company is an established actor in the Norwegian textile industry and publicly articulates ambitions related to circularity and sustainability, making it possible to observe how CE initiatives are framed, prioritised and bounded in practice. The presence of multiple CE-related initiatives within the same organisational setting allows the analysis to examine variation in implementation pathways while holding broader organisational and market conditions relatively constant. This supports an instrumental use of the case, where the empirical focus lies not on Varner as such, but on what the case reveals about risk-conditioned CE implementation.

The case is further situated within the Norwegian and broader Scandinavian context, which is characterised by comparatively strong sustainability norms, advanced retail markets and increasing regulatory attention to circularity. This context is analytically useful because it allows the study to examine CE implementation under conditions that are often assumed to be favourable for sustainability-oriented change. Observing constraints and trade-offs in such a setting provides insight into how risk operates even where institutional expectations and public discourse are broadly supportive of CE ambitions.

Access constraints play an important role in defining the scope of the case study. The Varner Group is privately owned and does not publish detailed financial data, and direct access to internal decision-making processes is limited. As a result, the study does not aim to reconstruct internal strategic choices or to assess the financial performance of individual CE initiatives. Instead, the empirical analysis is based on publicly available documents, including sustainability reports, corporate communications, third-party reports and selected media coverage. These materials allow the study to analyse how CE initiatives are articulated, justified, and qualified in relation to perceived constraints and external expectations. While

such documents do not permit conclusions about internal intentions or causal decision processes, they do support well-grounded conclusions about organisational framing, prioritisation and the articulation of risk.

The scope of the case study is therefore deliberately defined. The analysis focuses on CE initiatives as they are articulated, justified, and implemented at the organisational level, rather than on internal performance metrics or confidential strategic decisions. This scope is aligned with the RQ and ensures that the case provides sufficient empirical leverage to examine how structural, organisational, institutional and reputational risks shape CE implementation in practice.

Having justified the case selection and defined its empirical boundaries, the next section develops the analytical framework used to translate the risk categories introduced in Chapter 1 into theory-informed hypotheses and observable indicators.

2.1.3 Analytical framework: hypotheses and operationalisation

This section develops the analytical framework used in the study. Building on the theoretical discussion in Chapter 1, it uses the four risk categories (structural, organisational, institutional and reputational) and translates it into theory-informed analytical hypotheses and observable indicators. The purpose of this framework is not to test propositions or establish causal relationships, but to make explicit how theory informs what the analysis looks for in the empirical material and how interpretations are grounded in prior conceptual work.

Rather than functioning as hypotheses in a positivist sense, the expectations articulated below serve as analytical reference points. They express how the literature suggests different forms of risk are likely to shape the design, framing and scope of CE initiatives in the textile industry. They are used to structure attention during document analysis and to support systematic comparison across initiatives, while remaining open to empirical variation and unexpected patterns.

To maintain clarity and consistency with the structure of the thesis, the hypotheses are labelled H1-H4. These labels are retained only as organising devices and should be read as shorthand for analytically derived expectations rather than as testable hypotheses. Based on the literature reviewed in Chapter 1, the study formulates the following hypotheses:

H1 - Structural risk: *Where textile markets are structured by high-throughput demand and fragmented buyer-driven value chains, CE initiatives will be disproportionately oriented toward efficiency gains and downstream loop-closure (e.g., recycling, material substitution, collection schemes) rather than measures that require reduced throughput or upstream redesign.*

H2 - Organisational risk: *Where organisational routines and performance metrics are aligned with speed, cost efficiency, and turnover, CE initiatives will be framed as selective add-ons (pilots, limited-scope programmes, niche product lines) that minimise disruption to core operations, rather than as integrated changes to business models, sourcing structures, or inventory logic.*

H3 - Institutional risk: *In contexts characterised by fragmented and evolving regulatory frameworks, CE initiatives will be oriented toward compliance readiness (reporting, due diligence alignment, standards adoption) and will emphasise formal alignment with policy objectives over capital-intensive investments in circular infrastructure.*

H4 - Reputational risk: *Under heightened legitimacy pressure, CE initiatives will be prioritised and framed in ways that maximise visibility and communicability (certifications, storytelling, branded “circular” campaigns), regardless of whether they correspond to higher-value retention loops or generate system-level throughput reduction.*

Table 2 summarises how the theoretical framework developed in Chapter 1 is translated into theory-informed analytical hypotheses. These hypotheses work as interpretive reference points guiding the document analysis by specifying how different forms of risk are expected to shape the framing and implementation of CE initiatives.

Table 2: Analytical hypotheses

Risk category	Theoretical grounding	Hypothesis	Documentary focus
Structural risk	High-throughput demand, CER effects, fragmented GVC governance, infrastructural limits	H1: CE initiatives will prioritise downstream loop-closure and efficiency improvements rather than	Emphasis on recycling, material substitution, take-back schemes; coexistence of CE with

		measures that reduce throughput or require upstream system redesign.	volume growth; references to supply-chain limits or infrastructure gaps.
Organisational risk	Path dependence, asset specificity, performance metrics aligned with speed and turnover	H2: CE initiatives will be integrated as selective or incremental add-ons that fit existing routines rather than reconfiguring core business models.	Pilot projects, limited-scope initiatives, “feasibility” language, layering onto existing operations; absence of changes to revenue logic or sourcing structures.
Institutional risk	Fragmented governance, regulatory uncertainty, uneven responsibility allocation	H3: CE initiatives will prioritise compliance readiness and formal alignment with regulation over long-term structural investment.	Reporting alignment, standards adoption, due diligence language, references to regulatory preparation or uncertainty.
Reputational risk	Legitimacy pressure, stakeholder scrutiny, symbolic adoption dynamics	H4: CE initiatives will prioritise visibility and communicability over depth within the value-retention hierarchy.	Certifications, consumer-facing campaigns, transparency narratives, emphasis on credibility and stakeholder expectations.

An expectation is considered supported when patterns in the documents consistently reflect the anticipated influence of a given risk, like repeated emphasis being put on scalability limits, compliance requirements or visibility and legitimacy, for example. When documents partly align with the hypothesis but also reveal tensions, ambiguities or alternative logics that qualify it, the hypothesis is considered to be complicated. A hypothesis is not reflected when the expected pattern does not appear in the material or when other considerations appear more important in shaping how CE initiatives are framed.

The analytical framework therefore serves as a structured interpretive lens. It clearly states how theory informs how empirical observations are related back to the conceptual framework from Chapter 1. The following sections explain how these hypotheses are operationalised through document selection, coding and comparative analysis.

2.2 Data collection

2.2.1 Document selection

The empirical material for this study consists of document-based data. Document analysis is chosen as an appropriate methodological response to these constraints. Public documents are not treated as neutral representations of organisational reality, but as situated texts that reflect organisational priorities, constraints and legitimacy concerns. Analysing these materials allows the study to trace how CE initiatives are framed, how risks are acknowledged or downplayed, and how organisational responses are shaped by external expectations. This approach is consistent with qualitative case study research that focuses on interpretation, context and meaning rather than direct measurement.

Four main categories of documents are included in the empirical material: Sustainability reports published by the Varner Group; corporate communication like website content, press releases and strategy documents; third-party reports by industry organisations, NGOs and policy bodies; and selected media coverage that directly addresses the company's CE-related activities or sustainability performance. In case of especially applicable media coverage that is directed at companies highly comparable to Varner or to the industry as a whole, this is used with emphasis given to the limitations that arise.

The document corpus was structured into three analytical tiers, showed in Table 3, distinguishing between documents that articulate CE initiatives, documents that empirically contextualise the organisational and institutional risk environment shaping their implementation, and documents that reveal visibility and legitimacy dynamics.

Table 3: Tiered inclusion criteria for document selection

Tier	Analytical purpose	Relevant RQ/SQ/H	Inclusion criteria
Tier 1: CE initiative documents	Identify and analyse CE initiatives and their framing and operationalisation	SQ1 SQ3	Explicitly refers to CE-related practices or initiatives; describes concrete organisational actions or programmes; provides insight into how initiatives are framed, scoped or implemented; refers to practical implementation conditions or constraints

Tier 2: Risk-conditioning documents	Contextualise structural, organisational and institutional conditions shaping CE implementation	RQ1 SQ2 H1 H2 H3	Provides empirically grounded insight into production systems, supply-chain organisation or governance arrangements; reveals organisational routines, capacities or coordination structures relevant to implementation; addresses regulatory or policy frameworks conditioning CE feasibility
Tier 3: Visibility and legitimacy documents	Analyse reputational dynamics, selective visibility and legitimacy pressures influencing CE prioritisation	H4 SQ3	Addresses external expectations, stakeholder scrutiny or public debate related to sustainability or circularity; reveals how CE initiatives are communicated, emphasised or selectively made visible; enables comparison between operational practice and external framing

Triangulation is established through the use of multiple document types and sources. The sources used differ in purpose, audience and incentive structures, allowing comparison of how CE initiatives and related constraints are framed across contexts. Triangulation is therefore source-based and analytical and serves to strengthen interpretation of recurring patterns rather than to validate internal decision-making or implementation outcomes.

2.2.2 Timeframe and boundaries

The empirical material is limited to documents published between 2020 and 2025. This timeframe was chosen because it corresponds to the period when CE became an explicit policy priority at the EU level, after the European Green Deal was accepted in 2020 and the following development of EU policy frameworks that increasingly identifies textiles as a priority sector for CE (European Green Deal 2019; European Commission 2022). Focusing on this period ensures that the analysis captures CE initiatives as they are articulated under heightened policy attention and clearer regulatory expectations.

Documents were sampled across the period to allow for both comparison over time and attention to specific developments. Sustainability reports and corporate publications were used to trace how CE initiatives and related constraints are framed longitudinally, while additional documents such as press releases, third-party reports and media coverage were included when

they addressed specific CE initiatives, regulatory developments or moments of external scrutiny relevant to the analysis

The empirical material is further bounded by substantive relevance. Only documents that explicitly engage with CE initiatives or organisational responses to CE-related policy, market or legitimacy pressures are included. Documents published outside the selected timeframe or documents that do not refer to CE as a concept or practice are excluded, as they do not provide sufficient analytical relevance for the RQ.

Media coverage and third-party reports are included selectively. Such material was added only when it directly addressed CE initiatives, implementation constraints or risk-related issues relevant to the Varner Group or the textile industry context. Collection of these documents stopped when additional material no longer introduced new information relevant to CE initiatives or their framing, and instead repeated themes already covered in the empirical material.

These temporal and substantive boundaries ensure that the empirical material remains focused, comparable over time, and directly aligned with the analytical framework and RQ. The aim is not to find and use all available material, but to construct an empirical base that allows for systematic comparison across document types and over time. By defining clear temporal and substantive limits, the study stays aligned with the RQ and the analytical framework from Chapter 1. An overview of the document types, sources, timeframe and their analytical purpose is provided in Table 4.

Table 4: Overview of empirical material and analytical scope

Document type	Source	Timeframe	Analytical purpose	Risk dimensions addressed
Sustainability reports	Varner Group (corporate publications)	2024	Identify CE strategy, priorities, and longitudinal framing of CE initiatives	Structural, organisational, institutional, reputational
Corporate communication	Varner Group website, press releases,	2020-2025	Analyse how specific CE initiatives are	Organisational, reputational

	strategy documents		articulated, justified, and prioritised	
Third-party reports	NGOs, industry organisations, policy-oriented bodies	2020-2025	Situate corporate claims within broader regulatory, industry, and sustainability debates	Institutional, reputational
Media coverage	Nordic and international media outlets	2020-2025	Capture moments of external scrutiny, critique, or heightened visibility related to CE	Reputational, institutional

The table provides the empirical basis for the analysis. Having established the scope, empirical material and boundaries for selection, the next step is to explain how this material is analysed in relation to the analytical framework. The following section outlines the analytical orientation and coding strategy, detailing how the documents are systematically examined to assess the hypotheses and to trace how the risk categories shape the implementation of CE initiatives.

2.3 Analytical approach and procedure

2.3.1 Operationalisation of risk categories

In this study, risk refers to the constraints created by existing structures, as they appear in how organisations frame and qualify their CE initiatives in documents. In the document analysis of this study, risk becomes visible through how initiatives are described in relation to limits, trade-offs, uncertainty or conditionality, rather than only through explicit risk statements or numerical assessments.

To ensure consistent and transparent coding, explicit decision rules were applied when identifying risk-related content in documents. This section explains how the four analytically defined risk categories are operationalised for the purpose of qualitative document analysis. The four risk categories outlined in Table 1 informed the coding strategy by defining both the mechanisms of risk and their observable textual manifestations. While these categories were developed conceptually in Chapter 1 and translated into hypotheses in Section 2.1.3, the present section clarifies how they are rendered empirically observable in the analysis of corporate documents and related texts.

Table 5 summarises the operationalisation of the four risk categories by outlining their associated analytical hypotheses and typical documentary indicators.

Table 5: Operationalisation of risk categories

Risk category	Analytical hypothesis	When is a passage coded as risk	Indicators in documents
Structural risk	CE initiatives are shaped by existing production and supply chain structures	Reference to market conditions, production systems, supply chains or infrastructural limits	References to scalability limits, cost constraints, material availability, reliance on existing production systems, logistical challenges
Organisational risk	CE initiatives align with existing organisational routines and capacities	Reference to internal routines, coordination issues, business models or organisational capacity limits	Emphasis on pilot projects, limited scope initiatives, internal coordination challenges, incremental implementation
Institutional risk	CE initiatives reflect regulatory and policy frameworks	Reference to regulation, standards, certifications or compliance requirements	References to regulation, standards, certifications, policy alignment, compliance requirements
Reputational risk	CE initiatives are shaped by visibility and legitimacy concerns	Reference to external expectations, public scrutiny or legitimacy concerns	Prominent communication, public commitments, NGO references, sustainability narratives, branding language

On this basis, the following section outlines the analytical procedure used to code the empirical material and to identify recurring patterns across initiatives, leading to the construction of CE implementation pathways.

2.3.2 Coding strategy

The coding strategy follows a structured, theory-informed approach and was implemented in three stages. Throughout the process, coding decisions were guided by the analytical framework developed in Chapter 1 and the hypotheses outlined in Section 2.1.3, while remaining open to variation in how risk is articulated across documents.

In the first stage, the documents were read closely and coded inductively to identify passages referring to CE initiatives, implementation conditions and references to constraints, trade-offs

or qualifications. At this stage, attention was given to towards how initiatives were described, framed or limited in relation to production systems organisational arrangements, regulatory contexts or external expectation, in alignment with the risk categories. Passages were coded when they referred to implementation conditions, constraints, scalability, feasibility, regulatory alignment or legitimacy concerns.

In the second stage, the initial codes were reviewed and grouped deductively under the four predefined risk categories. This stage involved comparing passages across documents to identify repeating patterns in how different forms of risk were articulated and how they shaped the framing and scope of CE initiatives.

In the third and final stage, the coded material was comparatively analysed to find patterns across initiatives and documents. This involved examining how different risk categories interacted, whether certain forms of risk were consistently associated with particular types of CE initiatives and how these patterns contributed to the identification of distinct implementation pathways.

All the codes and coded passages were organised in Excel, which was used to store, sort and compare coded material across documents, while Zotero was used to manage and identify relevant documents and passages during the document selection and review process.

When a passage reflected more than one risk category it was assigned a primary “main” code based on the source of the constraint (e.g. market structure, organisational capacity, regulation or external legitimacy pressure). If two categories applied equally, the category that was most directly linked to the limiting condition affecting implementation was prioritised.

The aim of this coding strategy is to maintain transparency of coding decisions and to keep track of relevant passages and the rationale behind their placement.

2.3.3 Pathway construction

Following the coding process, the analysis turns to identifying broader patterns in how CE initiatives are implemented. Rather than treating each initiative as a separate case, the aim is to organise similarities and differences across initiatives into a limited number of analytically meaningful implementation pathways. This is achieved through systematic comparison of coded material, focusing on how structural, organisational, institutional and reputational risks interact in practice and how these interactions shape the scope, form and framing of initiatives.

Pathways are used in this study as an analytical and methodological tool to examine CE implementation under conditions of path dependency. As outlined in Chapter 1, implementation is shaped by persistent production structures, organisational routines, regulatory frameworks and legitimacy pressures that continue to influence action over time. These conditions do not affect initiatives in isolation but tend to shape different initiatives in similar ways. A pathway-oriented approach therefore provides a way to translate this theoretical understanding into empirical analysis by focusing on recurring patterns of implementation rather than on individual initiatives or assumed linear progress. Implementation pathways are constructed as analytical outcomes of the coding process, not as predefined categories. Pathways are used to capture recurring ways that CE initiatives are shaped and limited by different combinations of risk across the empirical material.

Pathways were identified through a comparative reading of coded initiatives across documents. Initiatives were grouped into the same pathway when they showed consistent similarities along the following criteria: the dominant risk categories shaping the initiative; the type of constraint most directly affecting implementation; the scope and ambition of the initiative; the way the initiative is framed in documents; the stability of this pattern across documents or over time.

A pathway was identified only when a pattern appeared repeatedly across multiple initiatives and documents instead of as a single isolated example. This requirement aims to ensure that pathways reflect shared implementation logics instead of individual cases or observations. If

initiatives did not fit clearly within a single pathway, they were assigned to the pathway that best reflected their dominant implementation logic, while overlap with other pathways was noted analytically.

Together, the operationalisation of risk categories, the coding strategy, and the construction of implementation pathways establish a structured and theory-informed analytical approach for examining how CE initiatives are shaped in practice. By translating abstract risk concepts into observable indicators and systematically comparing patterns across initiatives, the analysis is able to capture how different configurations of structural, organisational, institutional and reputational risk condition the form, scope and framing of circular practices.

2.4 Limitations

This study is subject to limitations related to data, methodology, and scope. These limitations are outlined below to clarify the boundaries of the analysis and the claims that can be made on the basis of the empirical material. Recognising these constraints is important for situating the analytical results appropriately and for clarifying the scope and robustness of the conclusions that can be drawn. The following section therefore reflects on the methodological and data limitations of the study, explaining how they influence the analysis and how they are addressed within the research design.

As the empirical material consists exclusively of publicly available documents, including sustainability reports, corporate communications, third-party reports and selected media coverage, there are certain limitations to the triangulation and accessible information. The reliance on public material is the result of temporal limitations and limited access to company representatives. Attempts were made to obtain interviews or internal data with several companies and several representatives across several platforms, with no success. In the end, it was necessary to proceed with a case study design that did not rely on inside information. As a result, the analysis is based on how CE initiatives and related constraints are articulated externally, instead of on internal discussions, informal decision-making processes or operational data. Public documents are produced for communicative and strategic purposes and might emphasise certain initiatives while minimising or avoiding conflicts, uncertainty or

failure. Consequently, the study cannot claim insight into internal motivations, deliberations or actual operational performance of CE initiatives, which would have been a very interesting topic to study.

The study uses qualitative document analysis and interpretive coding informed by a risk-based theoretical framework. This approach allows for systematic analysis of framing, prioritisation and constraint articulation, but it limits the ability to verify interpretations against internal perspectives or observed behaviour. Risk is identified through textual patterns rather than through direct observation or triangulation with interviews or quantitative data. This means that forms of risk that are not openly acknowledged or that remain implicit in public communication may not be captured. The study does not conduct causal testing or process tracing based on internal evidence and can therefore not establish causal relationships between specific risks and implementation outcomes or assess the relative impact of different risk categories.

The analysis is based on a single case study within a defined timeframe and policy context. The case is selected for analytical relevance rather than representativeness, and the findings reflect patterns observed in this specific organisational and institutional setting. The study does not compare multiple firms, ownership structures or national contexts and does not examine variation across the textile industry more broadly. In addition, the focus on publicly articulated initiatives means that informal practices, abandoned projects or internally contested initiatives fall outside the scope of the analysis. As a result, the study cannot claim generalisability, predictive capacity or sector-wide conclusions about CE implementation.

Together, these limitations indicate that the study's contribution lies in analytical insight into how risk shapes the public articulation and framing of CE initiatives rather than in evaluation of internal decision-making, implementation effectiveness or comparative performance across firms or contexts.

2.5 Reflexivity and validity

This section addresses questions of reflexivity and validity in the analysis. Given the qualitative and interpretive nature of the study, and the fact that risk is inferred rather than directly observed, it is important to clarify how analytical judgements were made and how the credibility of the findings is supported.

2.5.1 Analytical reflexivity

Analytical reflexivity in this study refers to awareness of how theoretical choices, analytical decisions and the nature of the empirical material shape interpretation. Because the study relies on qualitative document analysis, reflexivity is needed to avoid treating documents as neutral descriptions of organisational practice or assuming that what is written fully reflects what happens in practice.

A central reflexive concern relates to the use of corporate-produced sustainability documents. These documents are created for external audiences and are shaped by communication strategies. They may highlight positive developments, downplay uncertainty or exclude internal disagreement, failed initiatives or unresolved challenges. As a result, there is a risk that organisational framing is mistaken for organisational reality, or that the absence of explicit constraints is interpreted as their absence in practice.

To address this risk, the analysis does not treat corporate documents as complete or objective accounts. The coding strategy focuses specifically on constraints, qualifications and conditions attached to CE initiatives rather than on ambitions or achievements. Passages are coded as risk-related only when they refer to limits on feasibility, scope, coordination or implementation, and general sustainability rhetoric is excluded from risk coding. This helps reduce the risk of interpreting promotional language as evidence of risk dynamics.

Reflexivity is further supported through cross-document comparison. CE initiatives and related constraints are examined across sustainability reports, corporate communications, third-party material or media coverage and across time. Patterns that appear consistently across different

sources are treated as more robust, while isolated claims or unusually positive framings are interpreted with caution.

Reflexivity is therefore built into the analytical process rather than treated as a separate step. By combining clear coding rules with comparison across documents, the study remains attentive to how risk is selectively articulated in corporate discourse while avoiding over-interpretation of individual documents or statements.

2.5.2 Validity and robustness

Validity in this study is understood in qualitative terms, focusing on credibility, coherence, and analytical robustness rather than measurement accuracy. A central source of credibility lies in the internal consistency of the research design. The RQ, theoretical framework, analytical framework, data collection strategy, and analytical procedures are closely aligned and build on one another in a transparent way.

Analytical robustness is further supported by the explicit operationalisation of risk categories and by a clear coding strategy. Making hypotheses, indicators, and analytical steps explicit allows the reader to follow how interpretations were developed and how patterns were identified. The use of multiple document types also supports robustness by allowing patterns to be examined across different sources and communicative contexts.

Pattern identification is not based on isolated statements, but on recurring observations across documents and initiatives. When similar patterns appear across multiple sources or over time, they are treated as analytically robust rather than incidental. At the same time, inconsistencies and tensions are retained rather than smoothed out, as they provide insight into the contested nature of CE implementation.

2.5.3 Transferability

The findings of this study are not intended to be statistically generalisable. As a single-case, qualitative study, the analysis does not aim to produce claims that apply uniformly across firms or industries. Instead, the study offers analytically transferable insights.

By grounding the analysis in theory and clearly specifying the context in which the case is embedded, the study allows readers to assess the relevance of the findings for similar settings. The identified risk dynamics and implementation pathways may therefore be transferable to other firms operating in comparable industries or regulatory environments, even if empirical outcomes differ. This form of transferability strengthens the contribution of the study while remaining consistent with its qualitative design.

2.6 Conclusion

This chapter has outlined the research design, data selection and analytical strategy used in the study. It has clarified how risk is conceptualised as a structural and discursive condition, how CE initiatives are identified in documents and how different forms of risk are operationalised and coded in a transparent and consistent way. The chapter has also specified the scope of the empirical material, the limitations of the study and the reflexive considerations guiding interpretation.

The methodological choices made in this chapter define what the analysis can deliver. The empirical analysis does not evaluate performance or outcomes or reconstruct internal decision-making processes. Instead, it produces three concrete analytical outputs. A set of coded CE initiatives identified across documents, a mapping of the risk configurations shaping how these initiatives are framed and constrained, and a set of CE implementation pathways that capture recurring patterns in how initiatives are shaped by different combinations of risk.

On this basis, the following chapter presents the empirical analysis. It applies the coding framework to the selected documents, examines how risk configurations emerge across

initiatives and documents, and develops CE implementation pathways that synthesise these patterns into analytically grounded findings.

3. Empirical findings: The Varner Group

This chapter presents the empirical findings of the thesis and provides the empirical basis for examining the RQ: *How do structural, organisational, institutional and reputational risks shape the implementation of CE initiatives, as observed through a qualitative case study in the textile industry?* Building on the conceptual and methodological foundations developed in the preceding chapters, this chapter reconstructs how CE ambitions are articulated, operationalised and bounded in practice within the firm's documentation. It further examines how these articulations are shaped by broader regulatory, infrastructural and reputational pressures.

The chapter is based on a qualitative, document-based single-case study of the Varner Group. The primary empirical material consists of Varner's corporate sustainability report from 2024, policies, supplier standards, brand-level websites and publicly available statements and interviews by company representatives. These documents are treated as discursive artefacts that contribute to revealing how CE initiatives are framed, justified, prioritised and delimited within the organisation. They constitute the empirical core of the analysis and form the sole basis for identifying initiatives, patterns and pathways discussed in this chapter.

In contrast, documents produced by non-governmental organisations, international organisations, policy bodies and regulatory authorities are not analysed as empirical subjects. They are instead used to contextualise the plausibility of the constraints Varner cites, not to establish that the constraints objectively exist. These sources provide insight into the regulatory environment, infrastructural constraints and normative expectations that shape the conditions under which Varner's CE initiatives are articulated. Their role in the chapter is for interpretation and context rather than evidence, helping to clarify why certain risks are articulated and identified in Varner's documents.

The chapter moves from the articulation of CE initiatives to the conditions that shape their form in practice. It begins by reconstructing how CE is framed and operationalised in Varner's own documentation. It then shows how recurring structural, organisational, institutional and reputational constraints condition these initiatives and restrict what is considered feasible.

Rather than treating these risks as isolated factors, the analysis demonstrates how they combine and reinforce one another, producing patterned ways of translating CE ambitions into action. On this basis, the chapter identifies distinct implementation pathways, understood as recurring configurations through which CE is stabilised under conditions of constraint and uncertainty.

The chapter begins by mapping Varner’s CE initiatives, which serve as the initial analytical anchor for examining how CE principles are operationalised and subsequently reshaped through exposure to risk. To assess how circularity is operationalised in practice, the identified initiatives are interpreted in relation to the value-retention hierarchy visualised in the Butterfly Diagram. Mapping initiatives onto this structure allows an assessment of whether implementation aligns with higher-order loops or concentrates on recovery-based strategies.

3.1 Overview of CE initiatives in the Varner Group

This section maps the CE initiatives articulated in Varner’s documentation and public communication. The purpose is not to evaluate outcomes but to reconstruct how initiatives are framed, what forms of circularity they prioritise and how their scope is qualified. To assess how circularity is operationalised in practice, the identified initiatives are interpreted in relation to the value-retention hierarchy visualised in the Butterfly Model introduced in Chapter 1. The model prioritises inner technical loops like maintenance, reuse and prolonged use over outer-loop recovery like recycling. This is supported by Varner, stating “all textiles are sorted and assessed according to the waste hierarchy where the priorities lie in reuse, repair, recycle and as a final resort go to energy production” (Varner Group 2024b).

In their sustainability report, Varner states that circularity is central to its sustainability strategy and that it aims to implement circular strategies in material choice and design (Varner Group 2024b). Across the formal reports and website material, most initiatives relate to post-consumption handling, loop closure and value retention. At the same time, implementation is repeatedly bounded by eligibility rules, downstream dependence and consumer uptake. Table 6 provides an overview of the CE initiatives identified in Varner’s documentation, their dominant CE orientation and the primary boundary conditions articulated in relation to each.

Table 6: CE initiatives identified in the case

Initiative	Dominant CE Principle / the Butterfly Model	Primary boundary condition
Surplus and defective goods donation	Retaining value – inner technical loop (reuse)	Downstream dependence on third-party infrastructure and export chains
Consumer textiles take-back system	Retaining value – inner technical loop (reuse via collection)	Limited consumer participation and overlap with existing national collection systems
Return-to-market	Retaining value – inner loop (resale)	Product-type exclusions and hygiene norms restricting high-value reuse
Non-destruction of unsold goods policy	Retaining value – inner loop (conditional reuse)	Legal and safety eligibility criteria defining which goods can re-enter circulation
Textile waste recovery	Closing material loops – outer technical loop (recycling)	Scale requirements, fibre composition constraints and processing capacity limitations
Second-hand due diligence framework	Slowing resource flows – inner loop (extended use governance)	Downstream dependence on partner capability and oversight limits
Waste-hierarchy-based sorting	Closing material loops – outer technical loop (recycling/energy recovery)	Downstream mediation of recovery outcomes and limited control over end-treatment
Consumer lifetime extension communication	Slowing resource flows – inner technical loop (maintenance/prolonged use)	Dependence on consumer behaviour and lack of control over post-sale use

A first cluster concerns the handling of surplus, unsold and defective goods. Varner describes donation as a routine practice, with garments channelled to Fretex, a Norwegian second-hand organisation that operated national collection, sorting and resale infrastructure (Fretex, n.d.), and other partner organisations for reuse, resale and, where higher-value options are unavailable, recycling or energy recovery (Varner Group 2024b; Fagertun and BikBok, n.d.). The documentation states that “a major part of the textiles Varner donates are exported to international markets such as Asia and Eastern Europe where they will be sold in second-hand stores.” It further notes that export “entails certain risks, one of them being textiles ending up on landfills,” and that Varner has mapped Fretex’s processes through dialogue and due diligence procedures to address these risks (Varner Group 2024b). Within the butterfly hierarchy, donation corresponds to an inner-loop value-retention strategy centred on reuse. Donation is framed as circular stewardship, yet realised outcomes remain structurally dependent on third-party infrastructures and actors beyond the firm’s direct control.

This dependence becomes more visible in the consumer take-back system. Varner presents in-store return as a mechanism for facilitating reuse through donation to Fretex (Varner Group 2024b). However, the documentation explicitly acknowledges that “the take-back collection system is not much in use by customers, due to the well-developed infrastructure of return points for used clothing and textiles throughout Norway” (Varner Group 2024b). As a reuse-oriented intervention within the inner technical loop, its practical reach is mediated by consumer behaviour and existing collection infrastructures. On its website, Varner highlights the importance of helping consumers make informed choices and engaging them in sustainability efforts (Varner Group, Sustainability webpage, n.d.), aligning with the framing of CE as partially dependent on consumer participation.

Eligibility boundaries are further sharpened in Varner’s non-destruction policy for unsold goods. The documentation states that unsold products should be donated or reused rather than destroyed but also clarifies that “whenever the situation arises where products cannot be sold due to not meeting safety requirements and potentially posing a risk to health or the environment, the goods are destroyed” (Varner Group 2024b). This places limits on high-value retention within the inner loops of the butterfly hierarchy, as legal and safety frameworks override circular intent.

A related pattern emerges in initiatives aimed at recovering textile waste. Varner reports a target to recycle or repurpose 30 percent of textile waste while acknowledging structural constraints. As stated in the documentation, “our primary challenge lies in the fact that, on a global scale, the volume of waste we provide is relatively low. Recycling facilities require large quantities with consistent quality. Additionally, there are constraints related to colour and fibre composition” (Varner Group 2024b). These initiatives correspond to outer-loop strategies in the technical cycle, particularly recycling, where value retention is lower but infrastructural alignment may be more feasible. Recycling is framed as aligned with CE principles, yet materially constrained by scale, fibre composition and infrastructural requirements.

Return-to-market practices for returned online items extend this logic into reverse logistics. Varner reports that returned clothing is resold when possible, while unsuitable items are routed

to outlets or donation (Varner Group 2024b). The documentation specifies that “some products are not suited to be resold due to several reasons. Bottoms of underwear and swimwear, wrinkled garments, sets where only one part is returned are examples of products that we do not resell through the web store” (Varner Group 2024b). Resale occupies an inner-loop reuse position within the butterfly hierarchy but is narrowly defined by product-type exclusions and hygiene norms.

Finally, Varner frames sorting routines explicitly in relation to the waste hierarchy. The documentation states that “all textiles are sorted and assessed according to the waste hierarchy where the priorities lie in reuse, repair, recycle and as a final resort go to energy production” (Varner Group 2024b). This formal ordering mirrors the hierarchical logic embedded in the Butterfly Model. However, realised outcomes remain dependent on downstream actors and available processing capacity, particularly where exported flows and end-treatment decisions fall outside Varner’s direct oversight.

The initiative portfolio is presented as a segmented set of practices operating within clearly defined boundaries rather than as an integrated transformation programme. Donation and resale initiatives are constrained by downstream control and eligibility criteria, take-back schemes by consumer uptake and competing collection infrastructures and recycling ambitions by scale and material composition. Circularity is therefore presented as conditional rather than universal and as dependent rather than fully internally executable. In relation to the butterfly hierarchy, circularity is selectively operationalised within particular technical loops rather than uniformly advanced across the full value-retention spectrum.

These recurring boundary conditions suggest that circularity is stabilised in conditional and segmented forms. The next section examines how these boundary-conditions correspond to structural, organisational and institutional risk mechanisms identified in the theoretical framework.

3.2 Risk patterns

Building on the mapping of CE initiatives in the previous section, this chapter reconstructs the recurring risk patterns that condition their articulation and implementation in Varner's documentation. Risk is not treated here as a probabilistic calculation or as a normative judgement about success or failure. It is instead approached as an empirically observable mechanism that becomes visible through the language of the documents themselves. Risks appear where initiatives are qualified by feasibility claims, bounded by eligibility rules, framed through dependency on external actors or infrastructures, or aligned in advance with anticipated regulatory developments. In this sense, risk is identified through patterned references to limits, constraints, preconditions and contingencies that shape what is presented as possible, scalable or appropriate.

The analysis draws on a systematic reading of corporate policies, the Varner Sustainability Report and brand-level communications, supported by regulatory and industry-specific reports for context. Risk patterns are reconstructed where circular initiatives are repeatedly (i) conditioned by structural boundary claims like limited influence across value-chain tiers or infrastructural dependence, (ii) translated into organisational routines such as pilots, monitoring systems or phased implementation, (iii) framed in relation to existing or forthcoming regulatory obligations, or (iv) articulated in ways that manage visibility, credibility and stakeholder expectations. These repeating formulations are treated as indicators of underlying mechanisms that shape implementation pathways.

Four analytically distinct but interrelated categories are identified. The subsections that follow examine each of these categories in turn before analysing how their interaction stabilises distinct modes of CE implementation within the case.

3.2.1 Structural risk patterns

Structural risk refers to external system conditions that delimit the feasible scope and scale of CE implementation. In the case material, these risks are articulated as boundary conditions linked to value chain position, infrastructural capacity, material production systems and scale

thresholds. They are framed as constraints operating outside the firm's direct control rather than as matters of internal prioritisation. Two recurring clusters emerge across the documentation: value chain distance and infrastructure and material systems.

The first cluster concerns value chain distance, both upstream and downstream. Upstream, Varner differentiates between direct suppliers involved in garment assembly and earlier production stages such as textile processing, yarn manufacturing and raw material extraction (Varner Group 2024b; As 2025). The documentation notes that Varner has “greater influence on the factories that produce the garments than those producing textiles or yarn”, where relationships are mediated through commercial intermediaries or longer subcontracting chains (Bose and BikBok, n.d.; As 2025; Varner Group 2024b). Ambitions related to material sourcing or energy transitions at earlier stages are articulated as dependent on collaboration, encouragement and long-term engagement rather than direct control, and are framed as external to the firm's immediate authority (Varner Group 2024b; As 2025). This differentiation presents circular implementation as structurally uneven across the chain rather than uniformly applicable.

Structural distance is also visible downstream in the handling of surplus and donated garments. A significant share of collected or donated textiles is processed and resold through third-party actors and international export chains (Varner Group 2024b). Although dialogue and due diligence procedures with partners such as Fretex are described, sorting and final treatment occur outside Varner's direct oversight (Varner Group 2024b). Downstream circularity is therefore articulated as dependent on external infrastructures and market conditions in receiving countries. In both directions, value chain distance defines the reach and depth of CE implementation.

The second cluster concerns infrastructure and material systems. In production contexts, circular ambitions are repeatedly qualified by reference to energy systems, water infrastructure and technological capacity in supplier countries (Bose and BikBok, n.d.; Varner Group 2024a). Transitions toward cleaner production or electrification are framed as dependent on grid composition and local infrastructural development rather than as changes that can be mandated

by the firm alone (Varner Group 2024a; Bose and BikBok, n.d.). Similarly, recycling initiatives are described as requiring large quantities of consistent material quality, while fibre composition and colour heterogeneity limit recyclability (Varner Group 2024b). These constraints are described as features of current materials and industrial processes, not as results of internal strategic decisions.

In post-consumption recovery, infrastructural capacity is also invoked as a limiting factor. Recycling facilities are described as dependent on sufficient volumes and stable input streams, while the company's own waste quantities are characterised as relatively limited (Varner Group 2024b). Consumer-facing collection schemes are framed as constrained by the presence of established public return infrastructures in Norway, which reduces the scale and distinctiveness of in-store take-back channels (Varner Group 2024b). Scale thresholds and infrastructural configurations thus shape what forms of circular recovery are described as viable. From the perspective of the Butterfly Model, these constraints confine implementation to specific technical loops while leaving upstream redesign and regenerative cycles largely untouched.

Sector-level analyses document comparable value chain and infrastructural constraints in textile production regions, including uneven digital capacity, energy lock-in and limited recycling infrastructure (UNIDO 2025; European Commission 2022; Klima- og miljødepartementet and Nærings- og fiskeridepartementet 2024). The European Environmental Bureau similarly highlights energy-intensive production processes and infrastructural lock-ins that limit upstream circular practices (Macintosh 2024). While these sources are not analysed as empirical subjects, they contextualise Varner's emphasis on influence gaps and infrastructural dependence as sector-wide conditions rather than case-specific anomalies.

Across initiative areas, these structural conditions stabilise a selective articulation of circularity. Donation, resale and recycling practices are repeatedly qualified by eligibility criteria, safety regulations, hygiene exclusions and scale constraints (Varner Group 2024b; Fagertun and BikBok, n.d.). Circular recovery is described as feasible for specific volumes or product streams that meet technical and legal requirements, while other flows are excluded (Varner

Group 2024b). Circularity is thus framed as operating within existing production and post-consumption systems rather than reconfiguring them.

Structural risk therefore functions by delimiting what is presented as materially practicable. The documentation does not reject CE principles but consistently situates them within the parameters of value chain distance, infrastructural dependence and material system characteristics. While these constraints define the outer boundaries of implementation, they do not determine how the organisation responds internally. The following subsection therefore shifts to the organisational routines through which these structural limits are interpreted and operationalised.

3.2.2 Organisational risk patterns

If structural risk defines the external feasibility boundaries of CE implementation, organisational risk concerns how those boundaries are interpreted and managed within the firm. Organisational risk appears as patterned internal responses through which uncertainty and complexity are stabilised in practice. Rather than being articulated as explicit obstacles, these risks are embedded in routines that prioritise piloting, incremental adjustment, due diligence procedures and data-based oversight, shaping how donation, recycling, take-back and resale initiatives are operationalised. Within the case material, organisational risk becomes visible through three recurring patterns of internal response.

A first organisational pattern is the reliance on pilot logic and gradual experimentation. In sustainability reporting and brand-level communication, CE initiatives are frequently described as being tested or developed over time rather than implemented at scale (Varner Group 2024b). Take-back schemes are framed as dependent on consumer participation and acknowledged as having limited uptake, while recycling ambitions are articulated through gradual targets such as the 30 percent textile waste recovery goal (Varner Group 2024b). Circular initiatives are in this way presented as phased developments rather than immediate transitions, allowing uncertainty to be managed while containing the scale of change.

A second pattern is incremental adjustment within established commercial and organisational arrangements. Progress is described as step-by-step alignment with existing processes rather than fundamental redesign. Material initiatives are framed as substitutions within established sourcing arrangements, and surplus handling practices are embedded within existing retail and logistics structures (Varner Group 2024b, 2024a). The non-destruction policy similarly operates within established safety and compliance frameworks. Incrementalism therefore functions as a means of ensuring that CE initiatives remain compatible with prevailing commercial and organisational arrangements, limiting the extent to which they disrupt existing routines.

A third pattern concerns the centrality of data collection and reporting as governance mechanisms. The Supplier Code of Conduct requires participation in recognised assessment tools and regular reporting of environmental indicators. The sustainability report emphasises transparency, traceability and aggregated disclosure as markers of progress (Varner Group 2024b). CE implementation is operationalised through informational routines in which data availability, reporting compliance and participation in monitoring systems serve as indicators of alignment. Mapping and due diligence procedures in relation to export processes further illustrate how oversight is institutionalised through documentation and verification (Varner Group 2024b; As 2025). From the perspective of the Butterfly Model, this organisational emphasis on documentation and traceability reinforces activity within existing technical loops rather than shifting attention toward inner-loop redesign or regenerative cycles. These routines standardise expectations and coordinate across brands without prescribing specific production changes.

Feasibility language reinforces this pattern. References to what is realistic or manageable given current systems justify phased roll-out and selective application. Rather than describing external constraints, this framing reflects internal assessments of organisational capacity and risk tolerance. Circular initiatives are positioned as compatible with existing structures, conditioning how ambition is translated into operational practice.

Sector-level analyses point to similar dynamics across the apparel industry. NGO reports highlights how brands increasingly rely on disclosure, reporting and policy commitments as evidence of progress, even when operational change remains uneven (Fashion Revolution 2025). They also highlight that firms often adopt phased and pilot-based approaches to manage complexity and resource constraints, suggesting that reliance on reporting, phased implementation and pilot approaches is not unique to the case but reflects wider sector practices (amfori et al. 2025). While these sources are not treated as empirical evidence of Varner's behaviour, they contextualise the organisational routines observed in the case.

Taken together, these patterns indicate that organisational risk shapes CE implementation by mediating structural constraints through routines of piloting, incremental adjustment and informational governance. External limits are translated into internal coordination mechanisms that define pace, sequencing and scope. The following subsection situates these organisational responses within the broader regulatory environment that further conditions how circular initiatives are articulated and prioritised.

3.2.3 Institutional risk patterns

If organisational risk concerns how structural constraints are mediated internally, institutional risk refers to how external governance frameworks shape the timing, sequencing and articulation of CE initiatives. In the case material, institutional risk becomes visible through references to evolving regulation, anticipatory alignment and staged clarification of legal requirements. Regulation is framed not as a fixed constraint but as a developing environment that requires monitoring and preparation.

Across corporate policies and sustainability reporting, Varner acknowledges the relevance of existing and emerging regulatory frameworks. Compliance with legislation such as the Norwegian Environmental Information Act and the Norwegian Transparency Act is presented as a baseline obligation, particularly regarding transparency and due diligence (Varner Group 2024b; As 2025). Regulatory requirements are framed as governing parameters rather than drivers of redesign. This positioning is evident in the non-destruction policy, where products posing risks to health or the environment are excluded from reuse in accordance with legal

standards, and in formal alignment with the waste hierarchy, which structures surplus handling according to recognised regulatory principles (Varner Group 2024b). From the perspective of the Butterfly Model, this regulatory alignment primarily governs how materials move within established technical loops, without mandating shifts toward inner-loop redesign or regenerative cycles.

A further institutional pattern concerns anticipation and temporal alignment. Company documents frequently reference planned European Union measures, including expanded sustainability reporting and product-related regulation, as developments that are being monitored and prepared for over time (Varner Group 2024b). Regulatory change is described as staged and subject to further specification through delegated or implementing acts. In this context, commitments related to recycling, waste recovery and supplier disclosure are articulated in forward-looking and adaptive terms (Varner Group 2024b; As 2025). Institutional risk appears in the documentation as uncertainty regarding the scope and timing of evolving requirements, with alignment framed as an ongoing process within a regulatory environment that is still being clarified.

This anticipatory framing structures institutional risk around timing. Circular commitments, reporting systems and supplier requirements are articulated in ways that remain flexible pending further legal specification (Varner Group 2024b; As 2025). Instead of tying change directly to regulation, the documents position Varner as aligning progressively with an emerging framework that is still being defined. Institutional risk therefore appears as uncertainty regarding scope, thresholds and enforcement mechanisms, which conditions how far commitments are specified in advance. Standards and certification schemes function within this context as alignment mechanisms. Participation in recognised assessment tools and reference to international guidelines are presented as ways of ensuring consistency with current and anticipated regulatory expectations (Varner Group 2024b; As 2025). By aligning with established frameworks, the firm signals readiness and procedural conformity without tying commitments to specific future legal thresholds. Standards therefore work as stabilising devices in an environment characterised as dynamic and evolving.

These organisational framings can be contextualised by EU-level policy documents and analyses produced by non-governmental organisations, which highlight the gradual and staged rollout of circular textile regulation and the associated uncertainty regarding scope, timelines and enforcement (European Commission 2022; Macintosh 2024; PlanMiljø 2021; Mombarg et al., n.d.). The EU Strategy for Sustainable and Circular Textiles outlines ambitious long-term objectives while relying on phased implementation through delegated and implementing acts (European Commission 2022), and the European Environmental Bureau and related analyses point to jurisdictional complexity, uneven enforcement and regulatory gaps across production regions (Mombarg et al., n.d.; Macintosh 2024). Together, these sources suggest a governance environment characterised by evolving obligations rather than fully stabilised requirements. They are not treated as empirical evidence of Varner's behaviour but provide contextual grounding for why regulation is framed in the case material as temporally layered and subject to clarification.

These patterns indicate that institutional risk shapes CE implementation primarily through timing and sequencing rather than through direct prescription. Regulation is acknowledged and anticipated, but its evolving character encourages emphasis on alignment, documentation and flexibility. Circular initiatives are therefore articulated in ways that remain adaptable pending further legal clarification. While institutional risk structures when and how commitments are specified, it also interacts with expectations regarding transparency and legitimacy. The following section therefore turns to reputational risk patterns, examining how public scrutiny and communicative practices further condition the framing and prioritisation of CE initiatives within the Varner Group.

3.2.4 Reputational risk patterns

If institutional risk concerns alignment within an evolving regulatory environment, reputational risk relates to how CE initiatives are articulated in relation to visibility, credibility and stakeholder expectations. In the case material, reputational risk becomes visible through patterns of communicability, certification reliance, selective disclosure and consumer-facing narratives. Circularity is framed not only as an operational matter but also as a communicative practice situated within a context of public scrutiny.

Across sustainability reports and brand-level platforms, transparency is presented as a core principle of responsible business conduct (Varner Group 2024b; As 2025; Uppal 2021; BikBok, n.d.). CE initiatives are often introduced through narratives that emphasise clarity, accessibility and reassurance rather than technical detail (Junkyard, n.d.). This is visible in the framing of donation and export, where the sustainability report acknowledges landfill risks in international markets while simultaneously emphasising dialogue and due diligence procedures with Fretex (Varner Group 2024b). The articulation of risk management becomes part of the communicative strategy itself, presenting oversight and mapping as evidence of responsibility. This framing suggests that CE is not only an operational concern but also a communicative one, where the ability to explain and demonstrate action to external audiences becomes a defining feature of implementation.

Certification schemes play a central role within this visibility logic. References to third-party labels such as Fairtrade, GRS and related standards are used to signal credibility to consumers (Varner Group 2024b; Fagertun and Cubus, n.d.; Carlings, n.d.). These labels function as shortcut for credibility, allowing CE-related claims to be communicated without extensive explanation of underlying processes (Fagertun and Cubus, n.d.; Fairtrade Norge 2024). Public statements describe certification as providing assurance and reducing the need for detailed product-level explanation (Fagertun and Cubus, n.d.; Fairtrade Norge, n.d.). This reliance on certification positions legitimacy as something that can be delegated to external schemes, shaping CE implementation toward practices that are easily verifiable and recognisable (Fagertun and Cubus, n.d.; Fairtrade Norge 2024). This orientation aligns with initiatives such as preferred fibre sourcing and supplier participation in recognised assessment tools, which are communicable through established labels and reporting structures (Varner Group 2024b; As 2025).

Closely related to this emphasis on certification is a pattern of selective communication. Varner's documentation indicates a cautious approach to product-specific sustainability claims, with a preference for aggregated reporting and general statements over detailed disclosures (As 2025). Destruction exceptions and hygiene exclusions in resale are stated within compliance-oriented language, situating these exclusions within regulatory and safety requirements

(Fagertun and BikBok, n.d.). Transparency is therefore structured and conditional rather than exhaustive.

Consumer-facing narratives constitute a further reputational mechanism. Brand communications encourage care, repair and extended use of garments, often through lifestyle-oriented content such as guidance on maintenance or redesign (Carlings, n.d.; Junkyard, n.d.). In this framing, the success of CE initiatives is partly dependent on consumer behaviour, which places greater emphasis on post-purchase practices. This framing situates consumers as participants in circularity and makes initiatives visible in everyday contexts. Reputational risk thus shapes how circular initiatives are narrated, emphasising clarity, accessibility and recognisable actions.

These organisational framings can be contextualised by analyses produced by NGOs and civil society actors that document increasing public scrutiny of the fashion industry, highlighting growing expectations for disclosure and openness, while also noting that brands vary widely in the depth of information they provide (Fashion Revolution 2025). Similarly, scholars describe heightened attention to the credibility of corporate sustainability narratives in the absence of fully enforced regulation (Mombarg et al., n.d.). While not treated as empirical evidence of Varner's behaviour, these sources illustrate the broader climate within which communicative caution and certification reliance become organisationally rational.

Taken together, these patterns indicate that reputational risk shapes CE implementation by prioritising forms of action that are visible, recognisable and communicable to external audiences. From the perspective of the Butterfly Model, this emphasis tends to concentrate attention on outer technical loops and consumer-facing practices, while leaving less visible inner-loop redesign or regenerative interventions comparatively underrepresented. Certifications, aggregated reporting, landfill risk acknowledgement, due diligence mapping and consumer-facing narratives allow Varner to present donation, recycling, resale and take-back initiatives in ways that support legitimacy while limiting exposure to reputational challenges. This does not prevent action, but it channels CE toward practices that can be easily

explained and externally validated, rather than toward less visible or more complex interventions.

While reputational considerations influence how CE initiatives are communicated and framed, they do not operate in isolation. The emphasis on visibility, credibility, export risk management and consumer engagement interacts with structural constraints such as downstream dependence, organisational routines such as waste hierarchy sorting and institutional uncertainty regarding regulatory evolution. The preceding analysis has examined structural, organisational, institutional and reputational risks as analytically distinct dimensions shaping CE implementation. Table 7 synthesises these dimensions by summarising their core mechanisms and the empirical indicators through which they are operationalised in the Varner case. The table provides a structured overview before turning to their interaction.

Table 7: Risk dimensions and empirical indicators in Varner

Risk dimension	Core mechanism	Empirical indicators in Varner	Implication for CE Implementation
Structural	Feasibility delimitation through value chain distance and infrastructure lock-in	Upstream influence gaps; recycling scale thresholds; energy infrastructure dependence	Segmented and bounded circularity
Organisational	Pilot logic and phased sequencing	Pilot projects; reporting systems; feasibility framing	Incremental and manageable implementation
Institutional	Anticipatory alignment and standards adoption	Monitoring EU regulation; due diligence alignment	Temporal positioning and compliance orientation
Reputational	Certification and communicative signalling	Third-party labels; aggregated disclosure; consumer narratives	Communicable circular articulation

The following section turns to the interaction of these risk dimensions, examining how structural, organisational, institutional and reputational risks combine to shape distinct CE implementation pathways within the Varner Group.

3.2.5 Interacting risk configurations

The preceding subsections analysed structural, organisational, institutional and reputational risks as analytically distinct dimensions. The empirical material, however, indicates that CE implementation in the Varner Group is shaped through recurring configurations in which these dimensions interact. Circular initiatives are articulated within overlapping conditions of material feasibility, internal coordination, regulatory timing and public visibility. The following synthesis reconstructs these configurations and the mechanisms through which they stabilise implementation.

A first configuration comes from the interaction between structural and organisational risks. Structural conditions like value chain distance and infrastructural dependence are framed as setting outer feasibility boundaries for CE initiatives. Organisational routines including pilot projects, phased roll-out and monitoring systems appear as stabilising responses to these limits (Varner Group 2024b; As 2025). Structural constraints define what is presented as materially possible, while organisational practices translate these limitations into staged and administratively manageable forms of implementation. The interaction operates through internal mediation, where external material limitations are translated into staged and administratively manageable forms of implementation.

A second configuration links institutional and organisational risks. Regulatory frameworks are described as evolving and clarified through future delegated or implementing acts, creating uncertainty regarding scope and timing (European Commission 2022). Organisational routines like alignment with standards and reliance on reporting frameworks appear as responses to this uncertainty (Varner Group 2024b; As 2025). The interaction works through anticipatory alignment where changing regulations are reflected in documentation and procedures, even when exact requirements are not defined yet. CE commitments are therefore presented as preparatory and flexible, reflecting a regulatory environment perceived as gradual and open-ended.

A third configuration involves reputational and organisational risks. Public visibility and expectations for transparency shape how initiatives are communicated, while disclosure

practices determine the format and scope of information that is released. In several instances, this interaction also overlaps with institutional transparency requirements, creating a three-dimensional configuration in which regulatory disclosure expectations, internal reporting systems and external visibility pressures converge (Varner Group 2024b). Certification schemes and aggregated reporting function as communicative shortcuts that make complex practices understandable to external audiences (Varner Group 2024b; Fagertun and BikBok, n.d.). This interaction works through mediated visibility where the company controls how it reports information while responding to pressure to be transparent, resulting in carefully selected and standardised disclosures. CE initiatives are presented through familiar signals and documented processes that help maintain legitimacy under scrutiny.

A fourth configuration connects institutional and reputational risks. Regulatory development is described as ongoing, while expectations regarding responsibility and transparency are presented as immediate. The interaction works through temporal positioning where circular commitments are framed to fit current rules and expected future rules, while staying flexible as details become clearer (Varner Group 2024b). This temporal positioning allows commitments to signal responsibility in the present while preserving room for adjustment as regulatory details evolve. CE initiatives are therefore described using language of intent and alignment within a governance context that is still evolving.

Together, these configurations indicate that CE implementation emerges through the intersection of material feasibility boundaries, internal coordination mechanisms, regulatory timing and communicative positioning. Structural limitations define the range of materially practicable options, organisational routines stabilise these limitations in operational form, institutional uncertainty shapes the timing and specification of commitments and reputational considerations structure their visibility. These interacting dimensions create recurrent and stabilised patterns of articulation and prioritisation.

This synthesis provides the basis for reconstructing distinct CE implementation pathways. By identifying how specific combinations of risks stabilise particular forms of arrangement, alignment and communication, the analysis can now move from these interactions to the

patterns of implementation they produce. The next section therefore examines how these risk interactions materialise into identifiable CE implementation pathways within the case.

3.3 CE implementation pathways

This section introduces the concept of CE implementation pathways as an analytical device for synthesising the empirical patterns identified in the preceding sections. Implementation pathways are not treated as deliberate strategies, planned transitions or measurable outcomes. Instead, they are reconstructed as analytical constructs that capture how CE initiatives take shape in practice under recurring configurations of structural, organisational, institutional and reputational risk.

As shown in Section 3.2, CE implementation in the Varner Group is conditioned by multiple risk dimensions that do not operate independently. Structural constraints restrict what is materially and operationally feasible, organisational routines shape how these limits are managed internally, institutional uncertainty affects the timing and specificity of commitments and reputational pressures influence how initiatives are communicated and made visible. Implementation pathways emerge where specific combinations of risk dimensions occur repeatedly and stabilise similar forms of CE articulation across initiatives. They describe patterned ways in which CE ambitions are stabilised, qualified and translated into action across different domains of the organisation.

Pathways are reconstructed inductively from the empirical material by identifying recurring combinations of risk conditions and the corresponding forms of CE articulation. Rather than tracing individual initiatives in isolation, the analysis examines how similar framings, boundary conditions and implementation logics reappear across multiple initiatives and documents. Where these patterns cluster in consistent ways, they are treated as distinct implementation pathways. In this way, each pathway represents a configuration of risks and responses that channels CE implementation toward particular forms, scales and modes of operation.

Importantly, the use of pathways does not imply intention, optimisation or effectiveness. Pathways do not describe what the firm seeks to achieve or evaluate the success or failure of CE initiatives. Instead, they provide an analytical lens for understanding how CE is made workable under specific conditions of constraint and uncertainty. By focusing on pathways rather than individual actions, the analysis moves beyond descriptive mapping toward a more integrated explanation of how CE implementation is shaped in practice. The following subsections identify and describe the distinct CE implementation pathways reconstructed from the Varner case, specifying their defining features and the risk configurations through which they are produced. To further specify how these pathways structure circular implementation, they are analytically positioned within the Butterfly Model.

3.3.1 Pathway A: Informational Proxification

The Informational Proxification Pathway captures a mode of CE implementation in which circularity is primarily articulated and stabilised through the generation, management and communication of standardised information. In this pathway, CE is proxified into a question of data availability, traceability and reporting rather than material transformation. Circular practices are rendered visible and actionable through informational infrastructures that allow complex supply chains and environmental impacts to be represented in simplified, comparable and auditable forms.

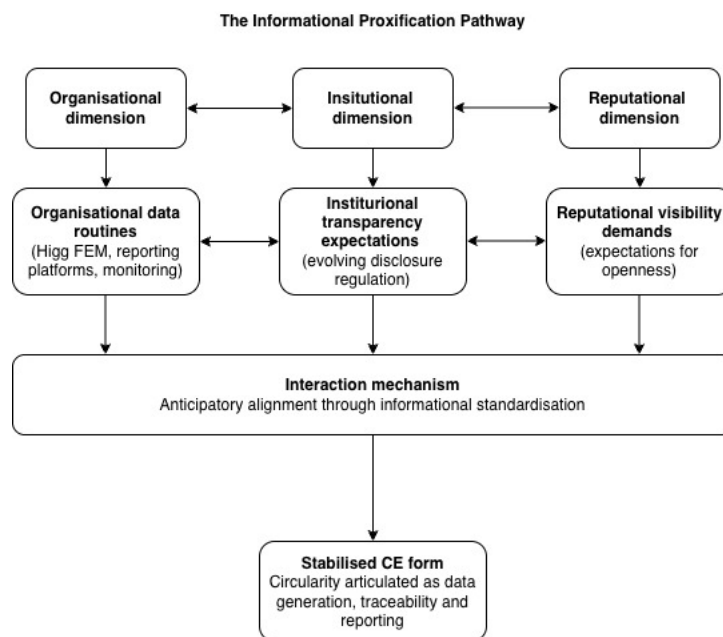


Figure 3: The Informational Proxification Pathway

The dominant risk configuration underpinning this pathway is produced by the interaction of organisational, institutional and reputational risks. Organisationally, reliance on data routines and reporting systems allows Varner to manage complexity and uncertainty within GVCs by translating environmental performance into measurable indicators. Institutionally, evolving regulatory frameworks place increasing emphasis on transparency, disclosure and due diligence while leaving many substantive requirements under development. Reputationally, expectations for openness and accountability create pressure to demonstrate progress in ways that are communicable to external audiences. Together, these risks favour a form of CE implementation in which informational compliance becomes a central proxy for circular action.

This pathway is clearly anchored in Varner's own initiatives and wording. Varner's suppliers are required to participate in recognised assessment tools and to maintain regular records of environmental data, including energy use, water consumption and emissions (As 2025). Selected facilities are requested to evaluate their environmental performance annually using platforms such as the Higg Facility Environmental Module or the Worldly Facility Data Manager (Varner Group 2024b; As 2025). These requirements are framed as mandatory routines that structure supplier engagement and define minimum expectations for participation in Varner's supply chain. Circularity is thus operationalised through data generation and submission rather than through direct prescriptions regarding production methods.

Similarly, the sustainability report places strong emphasis on transparency, reporting and the availability of aggregated data as evidence of sustainability work (Varner Group 2024b). Progress is frequently described in terms of improved data quality, increased coverage of reporting tools and enhanced traceability across suppliers. The documentation highlights participation in standardised frameworks as a key achievement, reinforcing the notion that being able to account for impacts constitutes a central dimension of CE implementation (Varner Group 2024b; Fagertun and Cubus, n.d.). In this framing, informational visibility stands in for material change, allowing CE to be demonstrated through documented processes rather than observable alterations in production systems.

Brand-level communication further reinforces this pathway. References to traceability, transparency and openness appear across websites and public statements, where CE is associated with the ability to provide information about sourcing, materials and supplier practices (Carlings, n.d.; Fairtrade Norge, n.d., 2024). At the same time, Varner consistently notes that detailed facility-level data are not always publicly disclosed and that reporting often relies on aggregated figures (Volt, n.d.; Varner Group 2024b). This qualification indicates that informational proxification operates within controlled boundaries, balancing demands for openness with organisational and relational constraints (As 2025; amfori et al. 2025).

The Informational Proxification Pathway is characterised by several key limits. First, the translation of CE into data routines risks narrowing implementation to what can be measured and standardised, positioning informational compliance as the primary operational expression of circularity (As 2025). Second, reliance on third-party platforms and assessment tools introduces a degree of abstraction, distancing CE from specific production practices and local conditions (Varner Group 2024a; As 2025). Third, the selective and aggregated nature of disclosure means that transparency remains partial, even as it functions as a central marker of legitimacy (As 2025). Despite these boundaries, transparency is framed as both a legal obligation and a marker of responsible conduct (As 2025; Fairtrade Norge, n.d.).

From the perspective of the Butterfly Model, this pathway does not directly activate a specific loop but operates at the level of governance infrastructure across both technical and biological cycles. By strengthening traceability, reporting and documentation, it primarily enhances visibility of outer recovery loops rather than intensifying inner value-retention loops such as repair, refurbishment or remanufacturing. Circularity is rendered legible before it is materially reconfigured.

Taken together, this pathway illustrates how CE can be stabilised as an informational achievement under conditions of organisational complexity, regulatory uncertainty and reputational pressure. By qualifying circularity as the successful generation and management of data, the Informational Proxification Pathway allows CE initiatives to be scaled, compared and communicated while remaining compatible with existing organisational structures. At the

same time, it delineates clear limits to the depth and scope of CE implementation, highlighting how risk configurations channel circular ambitions into informational rather than material forms.

3.3.2 Pathway B: Technocentric Incrementalism

The Technocentric Incrementalism Pathway captures a mode of CE implementation in which circular ambitions are framed as dependent on gradual technological improvement and future system upgrades rather than immediate structural change. In this pathway, CE is articulated as a long-term transition challenge that can be addressed through innovation, efficiency gains and phased adoption of new technologies. Circularity is therefore positioned as something that will be realised progressively as technical feasibility improves, rather than as a requirement for present-day reconfiguration of production or business models.

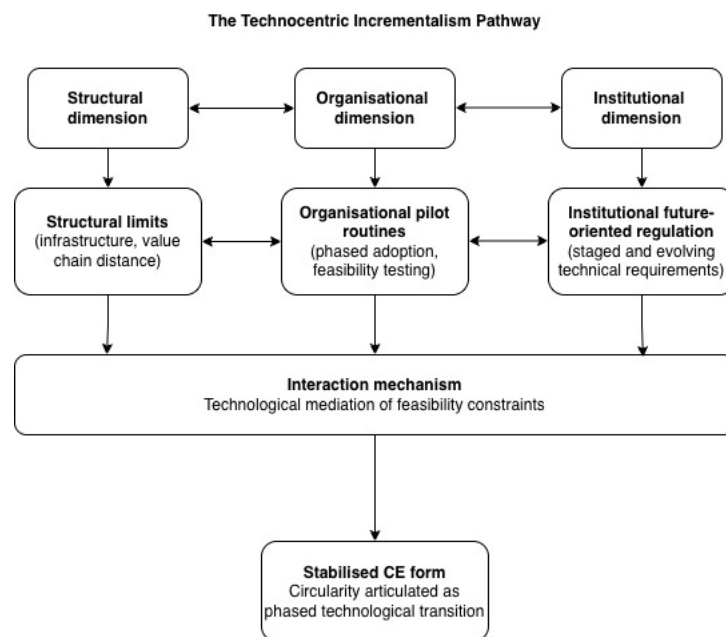


Figure 4: The Technocentric Incrementalism Pathway

The dominant risk configuration underpinning this pathway emerges from the interaction of structural, organisational and institutional risks. Structurally, infrastructural dependence and limited influence over upstream production stages constrain the scope for immediate material change, as Varner admits to having greater influence over Tier 1 than Tier 2 and 3 (ref.

Ch.3.2.1). Organisationally, internal routines prioritise feasibility, pilot testing and gradual integration of new solutions, framing CE initiatives like renewable energy and use of recycled fiber as a “step in the right direction” (Bose and BikBok, n.d.; As 2025; Varner Group 2024b). Institutionally, regulatory frameworks signal future expectations while leaving specific technical requirements and timelines under development (Macintosh 2024). Together, these risks favour an implementation logic in which CE is framed as dependent on technological readiness and external system change, allowing ambition to be expressed without committing to rapid or disruptive action (As 2025; Varner Group 2024b).

This pathway is anchored in Varner’s own initiatives and wording, particularly in relation to materials, energy and emissions (As 2025; Varner Group 2024a). In the sustainability report, the transition to preferred fibres is framed as a central CE ambition, with emphasis on increasing the share of recycled or responsibly sourced materials over time (Varner Group 2024b). At the same time, the documentation explicitly qualifies this ambition by noting functional requirements and performance needs, particularly the continued role of synthetic fibres (Ruud Granum and Bjerkestrand 2024). Circularity is framed as a process of gradual substitution within existing product categories rather than as a departure from prevailing design logics (Varner Group 2024b). Progress is described in terms of incremental improvement rather than categorical change.

A similar framing appears in relation to energy use and climate-related initiatives. Ambitions to reduce emissions and shift toward cleaner energy sources are articulated through conditional and future-oriented language throughout company documents (Varner Group 2024a; As 2025; Varner Group 2024b). Suppliers are encouraged to improve efficiency and explore cleaner technologies where possible, but requirements are framed as aspirational rather than mandatory (As 2025; Bose and BikBok, n.d.). The documentation repeatedly emphasises dependence on local infrastructure and public investment in production countries, presenting technological transition as something that unfolds over time and largely beyond the firm’s direct control (Varner Group 2024b; Bose and BikBok, n.d.; Varner Group 2024a).

Technological pilots and feasibility studies further reinforce this pathway. Varner's documentation refers to testing new solutions, participating in industry initiatives and learning from pilot projects before broader implementation is considered (Varner Group 2024b; As 2025; Bose and BikBok, n.d.). These pilots are framed as necessary steps for assessing technical viability and cost implications, particularly in areas such as energy systems and material innovation (Bose and BikBok, n.d.; Fashion Revolution 2025). Circularity is operationalised as experimentation and readiness building rather than as immediate scale-up, reflecting a governance environment where firms are still in an "exploration" or "feasibility" phase regarding systemic changes like supply chain electrification and digital lifecycle tracing (UNIDO 2025; Fashion Revolution 2025).

The Technocentric Incrementalism Pathway is characterised by several key qualifications and limitations that condition the scope of CE implementation. First, framing CE as dependent on future technological solutions allows ambitious goals to be articulated, such as the target to achieve 100% preferred fibres by 2025, while delaying concrete commitments in the present to an exploration or feasibility phase (Bose and BikBok, n.d.; Fagertun and Cubus, n.d.; Varner Group 2024a; As 2025). Second, the emphasis on efficiency and substitution tends to stay compatible with existing production volumes and organisational structures, limiting the depth of transformation implied by CE principles (Fagertun and Cubus, n.d.; Varner Group 2024b). Third, reliance on external infrastructure development and technological progress introduces temporal uncertainty, positioning CE as an ongoing journey rather than a near-term operational requirement (Bose and BikBok, n.d.; Uppal 2021).

Within the Butterfly Model, Technocentric Incrementalism concentrates on outer technical loops, particularly recycling and material substitution, while leaving inner loops such as repair, refurbishment and redesign largely untouched. Circularity is framed as improved material input and efficiency rather than prolonged product use or systemic regeneration. Biological cycles receive limited operational attention, indicating that implementation remains anchored in technical material recovery rather than regenerative redesign.

Taken together, this pathway illustrates how CE implementation can be stabilised as a forward-looking innovation project under conditions of infrastructural constraint, organisational feasibility concerns and regulatory uncertainty. By framing circularity as a matter of technological progress and incremental improvement, the Technocentric Incrementalism Pathway enables Varner to align with long-term CE ambitions while maintaining compatibility with existing systems. At the same time, it highlights how interacting risks channel CE implementation toward gradualism, limiting the speed, depth and scope of material change.

3.3.3 Pathway C and D: Regulated Stewardship and Narrative Legitimacy

This section presents two closely related CE implementation pathways that are stabilised through the interaction of institutional and reputational risks, namely the Regulated Stewardship Pathway and the Narrative Legitimacy Pathway. While analytically distinct, these pathways often coexist and reinforce one another in practice. Both are characterised by a focus on compliance, visibility and credibility rather than on deep material reconfiguration, and both are shaped by external expectations regarding responsibility, transparency and accountability.

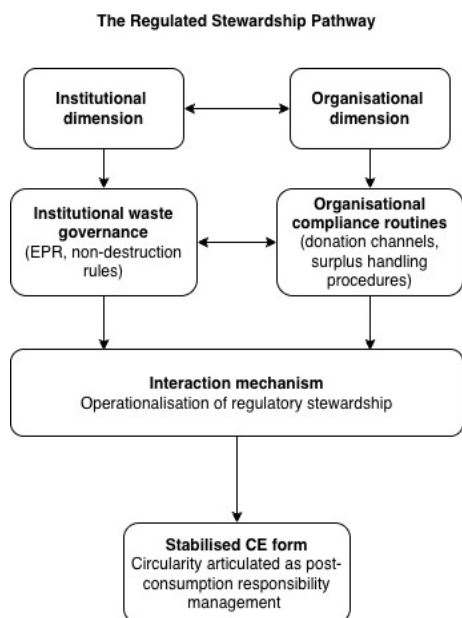


Figure 5: The Regulated Stewardship Pathway

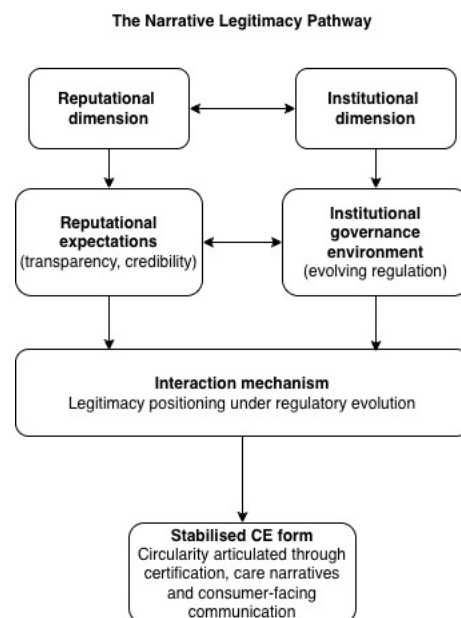


Figure 6: The Narrative Legitimacy Pathway

The Regulated Stewardship Pathway captures a mode of CE implementation in which circularity is framed primarily as a matter of meeting regulatory obligations and managing responsibility at the post-consumption stage (Varner Group 2024a; OECD 2024; Varner Group 2024b). In this pathway, CE is articulated through compliance with existing or anticipated rules governing waste, surplus handling and product responsibility (As 2025; Varner Group 2024b). Circular practices are stabilised as stewardship activities, such as donation routines to Fretex and alignment with waste hierarchies, that ensure products are handled appropriately at the end of their market life, rather than as interventions aimed at reducing throughput or redesigning production systems (Carlings, n.d.; Fagertun and BikBok, n.d.). Unlike the Informational Proxification Pathway, which centres on data infrastructures and reporting routines, the Narrative Legitimacy Pathway operates primarily through communicative framing and consumer-facing representation.

The dominant risk configuration underpinning this pathway is the interaction between institutional and organisational risks. Institutional risk arises from the expansion of regulatory frameworks addressing waste management, producer responsibility and transparency, combined with uncertainty regarding future scope and enforcement (Macintosh 2024; European Commission 2022). Organisationally, Varner responds to these conditions by embedding CE within established compliance routines and operational procedures, aiming to “do business in line with regulatory expectations” (Varner Group 2024a; As 2025). In the sustainability report and in brand-level communication, the handling of surplus and unsold goods is framed as a structured and rule-bound process (Fagertun and BikBok, n.d.; Varner Group 2024b). Donation, resale or controlled disposal are presented as responsible practices aligned with regulatory expectations (Carlings, n.d.; Junkyard, n.d.), while explicit references to health, safety and legal requirements define clear boundaries for what can enter circular channels (Fagertun and BikBok, n.d.; Junkyard, n.d.; Varner Group 2024b).

Within this pathway, CE is stabilised as a terminal intervention focused on managing outcomes rather than reshaping upstream practices (Varner Group 2024a, 2024b). Responsibility is exercised through correct handling and redistribution of products once they are no longer sold, as seen in the group's routine donation of surplus goods to partners like Fretex, positioning

circularity as an extension of waste governance rather than as a challenge to production volumes or business models (Fagertun and BikBok, n.d.; Ruud Granum and Bjerkestrand 2024). In this way, regulatory alignment provides legitimacy for CE initiatives that are bounded in scope but clearly anchored in formal obligations (Varner Group 2024a; As 2025).

In “butterfly” terms, Regulated Stewardship is concentrated in the outer technical loops, particularly reuse and recycling at the post-consumption stage. Intervention occurs primarily after market exit, rather than through upstream redesign or intensified inner-loop value retention. Circularity is stabilised as responsible end-of-life management rather than as transformation of production and use phases.

Closely connected to this is the Narrative Legitimacy Pathway, which captures a mode of CE implementation shaped primarily by reputational risk and public scrutiny (Adamkiewicz et al. 2022; Fashion Revolution 2025). In this pathway, CE is framed through communication strategies that prioritise credibility, recognisability and resonance with consumers and other stakeholders (Fairtrade Norge, n.d.; D’Arpizio et al. 2022). Circularity becomes something that must be visible and understandable, and its implementation is closely tied to how initiatives are presented rather than to their material reach (Adamkiewicz et al. 2022; Mombarg et al., n.d.).

The dominant risk configuration here emerges from the interaction of reputational and institutional risks. While regulatory frameworks remain under development, expectations for transparency and responsibility are already high (Macintosh 2024; Fashion Revolution 2025; D’Arpizio et al. 2022). Varner’s documentation reflects this tension by emphasising openness, alignment and intent in the present, even as concrete regulatory requirements are still evolving (As 2025; Varner Group 2024b, 2024a). In the sustainability report, transparency is repeatedly presented as a core value, and CE initiatives are framed through accessible narratives rather than technical detail (Varner Group 2024b). Brand-level materials published by Carlings, Cubus and Bik Bok further reinforce this orientation by highlighting certifications, care guidance and consumer-facing messages that signal responsibility in recognisable ways (Carlings, n.d.; Fagertun and Cubus, n.d.; Fairtrade Norge, n.d.).

A central feature of this pathway is reliance on third-party certification and labelling as communicative devices. References to schemes such as Fairtrade and GRS allow CE-related claims to be conveyed concisely, with legitimacy delegated to external standards (Fagertun and Cubus, n.d.; Varner Group 2024b). In interviews and public statements, Varner representatives describe such certifications as providing assurance to consumers and reducing the need for detailed product-level explanation, noting that the Fairtrade logo specifically is a “very visible way to communicate this work to the customer in a simple way” (Fairtrade Norge, n.d.; Huse 2025). This reliance stabilises CE implementation around practices that can be easily communicated and externally validated, while less visible or more complex interventions receive less emphasis.

Consumer responsibility also plays a key role in the Narrative Legitimacy Pathway. Brand-level communication frequently encourages consumers to care for garments, repair them and extend their lifespan, framing CE as a shared responsibility (Carlings, n.d.; Junkyard, n.d.). By locating part of the circular transition in consumer behaviour, this pathway aligns CE with everyday practices that are relatable and non-disruptive, while placing greater emphasis on post-purchase practices than on upstream production structures (Fashion Revolution 2025). Circularity is thus narrated as compatible with continued consumption, provided it is conducted responsibly.

Positioned within the Butterfly Model, Narrative Legitimacy aligns most closely with the slowing resource flows principle, encouraging extended use through care and consumer responsibility narratives. However, activation of inner loops remains behavioural rather than structurally embedded in repair infrastructures or redesign practices. The pathway therefore symbolically gestures toward inner technical loops without materially institutionalising them.

Together, the Regulated Stewardship and Narrative Legitimacy Pathways illustrate how institutional and reputational risks stabilise CE implementation around compliance, communication and credibility. Regulation provides a formal justification for bounded stewardship practices, while reputational pressures shape how these practices are made visible

and meaningful to external audiences. In combination, these pathways allow CE to be articulated in ways that satisfy regulatory expectations and maintain legitimacy, while limiting the extent to which CE ambitions translate into deeper structural transformation. While analytically distinct, these pathways are not mutually exclusive. Individual initiatives may reflect elements of multiple pathways. The pathways instead capture dominant patterns of stabilisation that reappear across the documentation, highlighting how specific risk configurations channel CE implementation toward particular operational and communicative forms.

While analytically distinct, the four pathways are not mutually exclusive. Individual initiatives often reflect layered configurations of structural, organisational, institutional and reputational risk. The pathways instead capture dominant modes of stabilisation that recur across the documentation and shape how CE ambitions are translated into practice. Figure 5 synthesises this reconstruction by indicating how the initiatives identified in Section 3.1 distribute across the implementation pathways. Dominant alignment reflects the primary risk configuration through which an initiative is stabilised, while secondary alignment signals recurring interaction effects across risk dimensions. This consolidated overview prepares the transition to the summary of findings, where the broader implications of these patterned stabilisations are drawn together.

CE initiative category	Informational Proxification	Technocentric Incrementalism	Regulated Stewardship	Narrative Legitimacy
Surplus and defective goods donation	○		●	○
Consumer textile take-back system	○		●	○
Non-destruction policy			●	○
Textile waste recovery	○	●	○	
Return-to-market			○	●
Waste-hierarchy sorting			●	○
Second-hand due diligence framework	●		○	○
Materiality assessment prioritising CE	●	○		○
Consumer lifetime extension communication	○			●

Figure 7: Distribution of CE initiatives across implementation pathways

On this basis, the following section summarises the empirical findings by integrating initiative mapping, risk reconstruction and pathway formation into a coherent explanatory account of CE implementation under constraint.

3.4 Summary of findings

This chapter has reconstructed how CE implementation takes shape in the Varner Group by moving from initiative mapping to risk analysis and finally to pathway reconstruction. Rather than evaluating performance or measuring outcomes, the analysis has focused on how CE is articulated, qualified and stabilised in corporate documentation under recurring conditions of constraint and uncertainty.

The mapping of initiatives in Section 3.1 showed that CE practices cluster mainly around post-consumption handling, value retention and selected forms of material recovery. Donation routines, resale of returned goods, sorting according to the waste hierarchy and recycling targets are presented as central expressions of circularity. However, these initiatives are

consistently bounded by eligibility criteria, infrastructural requirements, scale limitations and dependence on third-party actors. Circularity is therefore articulated as conditional and segmented instead of being applicable universally across products and value-chain stages.

Section 3.2 examined how these boundary-conditions correspond to distinct but related risk dimensions. Structural risk was shown to operate through value-chain distance, infrastructural dependence and material system constraints, which restrict the feasible scope and scale of CE implementation. Organisational risk became visible in routines of piloting, incremental adjustment, data-based oversight and feasibility framing, through which structural limits are translated into manageable internal practices. Institutional risk appeared in the anticipatory alignment with evolving regulatory frameworks, where uncertainty regarding timing and thresholds encourages flexibility and procedural preparedness. Reputational risk was reconstructed through communicability, certification reliance, selective disclosure and consumer-facing narratives, which shape how CE initiatives are presented and legitimised.

These risks do not operate independently. Section 3.2.5 demonstrated that recurring configurations of interacting risks stabilise patterned forms of CE implementation. Structural and organisational risks combine to produce gradual and segmented implementation. Institutional and organisational risks reinforce reliance on standards, reporting and preparedness in contexts of regulatory uncertainty. Reputational and organisational risks privilege communicable and externally verifiable practices. Institutional and reputational risks together shape the timing and framing of commitments in an environment of evolving governance expectations.

Building on these configurations, Section 3.3 reconstructed four distinct CE implementation pathways. The Informational Proxification Pathway stabilises circularity through data generation, reporting systems and traceability infrastructures, positioning informational visibility as a central operational expression of CE. The Technocentric Incrementalism Pathway frames circularity as dependent on gradual technological improvement and infrastructural development, allowing ambition to be articulated within feasibility constraints. The Regulated Stewardship Pathway anchors CE in compliance-oriented end-of-life management, where

donation and waste hierarchy alignment constitute responsible stewardship within established governance frameworks. The Narrative Legitimacy Pathway centres on communicative framing, certification and consumer engagement, emphasising recognisable and credible representations of circularity.

When positioned within the Butterfly Model, these pathways reveal a clear concentration of implementation in outer technical loops and post-consumption interventions. Inner value-retention mechanisms such as repair and refurbishment receive comparatively limited structural activation, while engagement with regenerative biological cycles remains marginal. Circularity is thus predominantly stabilised through governance infrastructures, incremental material adjustments and end-of-life management rather than through systemic redesign across the full range of circular flows.

Taken together, the findings indicate that CE implementation in the case does not emerge as a unified transformation programme. Instead, it is stabilised through interacting risk dimensions that channel initiatives into informational, incremental, compliance-based and communicative forms. Structural conditions define material limits, organisational routines manage these limits internally, institutional uncertainty shapes timing and specification and reputational pressures influence visibility and framing. CE is therefore made workable within existing production, governance and communication structures rather than positioned as an immediate reconfiguration of them.

The following discussion chapter builds on these findings to examine how the identified risk configurations and implementation pathways contribute to broader debates on CE transitions in the textile sector, and to assess their implications in relation to the theoretical framework and research question guiding this study.

4. Discussion

This thesis set out to examine the following RQ: *How do structural, organisational, institutional and reputational risks shape the implementation of CE, as observed through a qualitative case study in the textile industry?*

The question emerged from a conceptualisation of CE as a systemic transition framework aimed at closing material loops, slowing resource flows and retaining value (Murray et al. 2017; Gatenholm et al. 2021; Niinimäki et al. 2020b). Rather than treating CE as a collection of isolated managerial practices, Chapter 1 positioned it as a transition concept embedded within existing socio-technical regimes (Geels et al. 2017; Fischer and Pascucci 2017), whose implementation is conditioned by structural characteristics of GVCs (Gereffi 1994; OECD 2013) and sector-specific competitive dynamics (McNeill and Moore 2015). Building on recent work conceptualising risk as inherent to sustainability transitions (Lowe et al. 2025), the study hypothesised that CE implementation would be shaped by interacting exposure conditions across structural, organisational, institutional and reputational levels.

The empirical findings support this theoretical orientation. CE implementation does not unfold primarily through isolated barriers or singular drivers. Instead, it is stabilised within recurring configurations of interacting risks. Structural characteristics of buyer-driven GVCs and high-throughput markets constrain upstream redesign (Gereffi 1994; OECD 2013; Niinimäki et al. 2020b). Organisational routines translate these constraints into pilot-based experimentation, incremental adjustment and reliance on performance proxies, reflecting capability and coordination limitations identified in CE transition research (Kazancoglu et al. 2020; Juanga-Labayen et al. 2022). Institutional volatility channels action toward procedural alignment and compliance readiness (Fischer and Pascucci 2017; Lowe et al. 2025), while reputational exposure privileges communicable and certifiable interventions aligned with branding dynamics in the sector (McNeill and Moore 2015; Niinimäki et al. 2020b).

When mapped onto the Butterfly Model, these interacting risk dimensions produce a clear concentration of activity in the outer technical loops, recycling, post-consumption stewardship, material substitution and informational transparency. Inner-loop strategies such as systemic repair integration, throughput reduction or deep restructuring of upstream production networks remain comparatively marginal. This distribution is not incidental. It reflects how interacting risks privilege interventions that are materially feasible, administratively governable, regulatorily defensible and publicly communicable. Selective circularity therefore emerges as a configurational outcome rather than a strategic oversight.

The central theoretical argument advanced in this discussion is therefore that risk operates as a structuring condition that shapes which forms of circularity become institutionally viable. By integrating CE theory with a multi-level conceptualisation of risk, this study reframed implementation not as a technical optimisation problem, but as a transition process shaped by structural exposure, organisational path dependencies, institutional volatility and reputational contestation. The following sections elaborate how these interacting mechanisms refine existing understandings of CE transitions in the textile sector and clarify the conditions under which selective circularity becomes stabilised.

Having established this framing, the discussion now returns explicitly to the hypotheses developed in Chapter 1. The purpose of the following section is to assess how the empirical findings confirm, qualify or refine the theoretical expectations derived from CE and transition theory, and to clarify what these refinements imply for understanding circular transitions in high-throughput industries.

4.1 Revisiting theoretical expectations

4.1.1 H1 – Structural risk

H1 proposed that where textile markets are structured by high-throughput demand and fragmented buyer-driven value chains, CE initiatives would be disproportionately oriented toward efficiency gains and downstream loop-closure rather than toward absolute reductions in throughput or upstream redesign.

This expectation was grounded in three interrelated strands of literature. First, research on textile consumption dynamics shows that markets structured around novelty, affordability, and rapid trend cycles create systemic pressure for continuous volume growth (McNeill and Moore 2015; Niinimäki et al. 2020b). Such demand configurations structurally limit the viability of strategies aimed at slowing resource flows. Second, GVC theory conceptualises the textile industry as fragmented and buyer-driven, with dispersed production control and limited coordination capacity across organisational boundaries (Gereffi 1994; Barrientos et al. 2011). In such settings, initiatives requiring upstream material redesign or systemic production restructuring face coordination constraints that extend beyond firm-level discretion. Third, the CER mechanism highlights how efficiency-oriented improvements, such as recycling, reuse or material substitution may reduce per-unit impacts without altering growth-oriented demand structures (Lowe et al. 2025). When combined with infrastructural and technical limitations, including fibre blends, quality degradation and insufficient sorting systems (Juanga-Labayen et al. 2022), these dynamics were expected to channel CE implementation toward outer-loop and efficiency-based interventions.

The empirical findings strongly align with this expectation. CE initiatives were concentrated in downstream and efficiency-oriented domains, including material substitution, post-consumer collection schemes, surplus redistribution and digital transparency mechanisms. Interventions requiring upstream transformation or reductions in production throughput were either absent or framed as structurally infeasible. The Butterfly Model mapping further confirms this distribution, as initiatives cluster mainly in the outer loops of recycling, recovery and material substitution rather than in inner-loop strategies such as reuse, repair integration at scale or business model redesign that would materially reduce throughput. This outer-loop concentration reflects a pattern in which circularity is operationalised within existing production volumes rather than through structural contraction. References to value-chain influence ceilings and infrastructural dependence further demonstrate how fragmented governance structures and limited upstream control actively delimit transformative scope.

While the findings confirm the expectation derived from the literature, they also refine it. Structural risk does not simply constrain CE implementation. It stabilises outer-loop strategies

as institutionally compatible responses within high-throughput, fragmented value chains. Whereas foundational CE theory emphasises inner-loop retention and systemic redesign (Murray et al. 2017; Niinimäki et al. 2020b), the empirical material shows that recycling and material substitution function as structurally rational adaptations under buyer-driven fragmentation (Gereffi 1994; Barrientos et al. 2011). The rebound dynamic reinforces this pattern by demonstrating that efficiency gains can coexist with continued volume expansion (Lowe et al. 2025), allowing per-unit improvements without altering throughput.

Accordingly, structural risk should be understood not only as a constraint on circular ambition but as a selection mechanism that privileges outer-loop forms of circularity. In fragmented, buyer-driven value chains characterised by rapid consumption cycles, outer-loop dominance emerges as a stabilised and institutionally coherent configuration of CE implementation.

4.1.2 H2 – Organisational risk

H2 proposed that where organisational routines and performance metrics are aligned with speed, cost efficiency and high turnover, CE initiatives would be integrated as selective additions like pilots, limited-scope programmes, or niche product lines rather than as integrated transformations of business models, sourcing structures or inventory logic.

This expectation was grounded in two complementary strands of literature. First, research on CE implementation in the textile sector identifies organisational path dependence as a central constraint. Firms optimised for rapid production cycles and cost efficiency face heightened perceived risk when adopting strategies that challenge established performance metrics or revenue structures (Kazancoglu et al. 2020). Organisational configurations designed for speed and scale then function as mechanisms for inaction, stabilising existing operational logics even under sustainability pressure. Second, transition scholarship conceptualises regimes as reproduced through embedded routines, decision-making processes, and administrative practices (Fischer and Pascucci 2017). Even when sustainability commitments are articulated at the strategic level, organisational routines can convert systemic ambition into incremental adjustment. On this basis, CE implementation was expected to unfold in administratively

manageable formats that minimise disruption to core operations rather than through systemic restructuring.

The empirical findings align closely with this expectation. CE initiatives were repeatedly framed as pilots, exploration phases, feasibility studies or selective programmes applied to limited product lines or selected facilities. Rather than reconfiguring inventory logic, sourcing structures or growth strategies, circular measures were layered onto existing organisational arrangements. Organisational routines appeared to absorb structural constraints by translating them into manageable programmes. Where structural risk limited upstream control, organisational responses took the form of incremental monitoring systems or supplier engagement tools rather than fundamental redesign. Performance metrics and reporting practices were adjusted to accommodate CE indicators, but these adjustments did not override core turnover-oriented logics. Incrementalism therefore emerged not as an unintended shortcoming but as a stabilised governance logic. Circularity was operationalised through administratively bounded interventions like data routines, pilot electrification efforts or material substitution targets that preserved organisational continuity.

While the empirical material confirms that organisational routines constrain the depth of CE implementation, it refines the theoretical expectation in an important way. Rather than merely resisting transformation, organisational structures function as mediating mechanisms that translate structural constraints into administratively manageable incremental programmes. Foundational CE theory emphasises systemic redesign and integration of circular principles into core business models (Murray et al. 2017; Niinimäki et al. 2020b). However, the findings suggest that within high-throughput textile firms, such systemic ambition is filtered through organisational risk perceptions and capability structures. Firms often adopt circular measures that are compatible with existing operational systems (Kazancoglu et al. 2020). The present analysis demonstrates how this compatibility is actively produced through incremental governance formats. In line with transition theory, regimes are stabilised through routinised practices that absorb external pressures without fundamentally altering core structures (Fischer & Pascucci, 2017).

Organisational risk therefore does not simply block transformation, it mediates structural risk by converting systemic circular ambitions into selective, incremental and administratively feasible initiatives. Accordingly, organisational risk should be understood as a conversion mechanism that translates structural feasibility limits into incremental and administratively manageable programmes. It transforms structural limits, like fragmented value chains and high-throughput demand, into bounded programmes that align with existing decision-making routines. This mediation explains why CE implementation stabilises in incremental forms even when structural and reputational pressures favour more ambitious change.

4.1.3 H3 – Institutional risk

H3 proposed that in contexts characterised by fragmented and evolving regulatory frameworks, CE initiatives would be oriented toward compliance readiness, reporting alignment, standards adoption and formal policy alignment rather than toward capital-intensive infrastructural investments.

This expectation was grounded in literature highlighting how institutional environments shape strategic orientation under conditions of regulatory uncertainty. In globally fragmented value chains, governance responsibilities are distributed across jurisdictions, complicating enforcement and coordination (Barrientos et al. 2011). Within such contexts, firms face uncertainty regarding future compliance obligations and responsibility allocation (Kazancoglu et al. 2020). Research further suggests that institutional volatility discourages long-term infrastructural investments and instead encourages strategies that signal alignment with evolving policy goals (Suarez-Visbal et al. 2024). Accordingly, CE implementation was expected to prioritise procedural adaptation, reporting systems, standards compliance and due diligence alignment over transformative investment in circular infrastructure.

The empirical findings confirm this orientation. CE initiatives were frequently framed in terms of alignment with regulatory developments, reporting readiness and adherence to recognised standards. Anticipatory positioning toward forthcoming requirements appeared as a central organisational concern. Rather than prioritising capital-intensive infrastructural shifts, firms emphasised participation in recognised frameworks, due diligence processes and standardised

reporting systems. Standards and certifications functioned as devices through which firms could demonstrate preparedness in uncertain regulatory environments. Moreover, the sequencing of commitments revealed a clear pattern where procedural alignment preceded infrastructural transformation. Reporting structures, monitoring systems and standards adoption were introduced or strengthened even where underlying production systems remained unchanged. Institutional risk therefore shaped not only what was prioritised, but the order in which commitments were made.

While the empirical material confirms that institutional uncertainty encourages compliance-oriented strategies, it also refines the theoretical expectation. Institutional risk does not merely redirect attention toward compliance, it shapes the sequencing of transformation. CE literature often assumes that regulatory pressure will accelerate infrastructural investment and systemic redesign (Murray et al. 2017; Niinimäki et al. 2020b). However, the findings suggest that in fragmented governance environments, firms first invest in procedural alignment before committing to material transformation. Standards and reporting frameworks function as buffering devices, allowing firms to demonstrate conformity while postponing capital-intensive restructuring. This sequencing dynamic resonates with broader transition scholarship emphasising how regimes adapt incrementally under policy pressure rather than through abrupt transformation (Fischer and Pascucci 2017). Under conditions of institutional uncertainty, procedural compliance becomes a risk-management strategy.

Institutional risk therefore operates as a temporal structuring mechanism. It encourages firms to stabilise their regulatory exposure through formal alignment and standards adoption before engaging in infrastructural investment. In doing so, it contributes to the incremental and outer-loop orientation identified in previous sections, reinforcing the stabilisation of selective forms of circularity within uncertain governance contexts.

4.1.4 H4 – Reputational risk

H4 proposed that under heightened legitimacy pressure, CE initiatives would be prioritised and framed in ways that maximise visibility and communicability, regardless of whether they correspond to higher-value retention loops or generate system-level reductions in throughput.

This expectation was grounded in literature highlighting the symbolic and legitimacy dimensions of sustainability in the textile industry. Research on fashion consumption and sustainability communication shows that firms operate under intensified public scrutiny and stakeholder expectations, which shape how sustainability practices are framed and presented (McNeill and Moore 2015; Niinimäki et al. 2020b). Within such environments, CE initiatives can function as mechanisms of market legitimacy, particularly when they are easily recognisable and communicable to consumers. Recent work further conceptualises reputational exposure as a risk mechanism that shapes strategic adaptation. Under conditions of heightened visibility, firms may adopt initiatives that signal alignment with sustainability norms without fundamentally altering growth-oriented production structures (Lowe et al. 2025). On this basis, CE implementation was expected to privilege certifications, branded circular campaigns, transparency narratives and storytelling formats that enhance communicability and stakeholder recognition.

The empirical findings confirm this expectation. CE initiatives were frequently framed through third-party certifications, consumer-facing narratives and branded campaigns emphasising transparency and responsibility. Certifications functioned as visible markers of credibility, while storytelling and educational communication framed circularity as a collaborative journey between firm and consumer. Initiatives that were easily communicable, such as certified product lines, collection schemes and durability narratives, were foregrounded in public communication. By contrast, initiatives with deeper implications for production volumes or supply-chain restructuring received limited visibility or were framed as long-term ambitions. Communicability emerges as a filtering device within the risk configuration, privileging externally legible interventions over materially transformative but less visible alternatives. Among possible circular interventions, those that could be clearly signalled and externally validated were prioritised and amplified.

While the findings align with the expectation that legitimacy pressures influence CE framing, they also refine the theoretical understanding of reputational risk. Rather than simply encouraging sustainability experimentation, reputational risk introduces a visibility filter that privileges initiatives that are easily communicable over those with deeper throughput

implications. Foundational CE literature emphasises systemic redesign and value retention across product life cycles (Murray et al. 2017; Niinimäki et al. 2020b). However, the empirical evidence indicates that in high-visibility sectors such as textiles, circular initiatives are selected not only for their environmental performance but also for their communicative value. CE practices may operate as mechanisms of legitimacy under reputational exposure (Lowe et al. 2025). The present findings extend this insight by demonstrating that communicability itself becomes a structuring criterion in CE implementation. In this sense, reputational risk does not only shape how initiatives are presented, it influences which initiatives are chosen. By privileging certifications, narratives and branded circular programmes, reputational risk contributes to the stabilisation of selective and often outer-loop forms of circularity. Initiatives that promise systemic throughput reduction but lack immediate visibility are less likely to be prioritised within legitimacy-sensitive organisational contexts.

Reputational risk therefore operates as a filtering mechanism within the broader risk configuration identified in this study. It reinforces incremental and compliance-oriented strategies by amplifying those that are externally legible, thereby shaping the institutional form that CE implementation ultimately takes in the textile sector.

4.2 From individual risks to configurational causation

The preceding subsections demonstrate that each of the four theoretically derived hypotheses finds empirical support. Structural conditions favour efficiency-oriented and downstream circular strategies, organisational routines stabilise incremental and pilot-based adoption, institutional uncertainty channels action toward compliance readiness, and reputational exposure privileges communicable initiatives. However, their explanatory power does not lie in isolation. The empirical material indicates that CE implementation is configurationally structured. It emerges from the interaction and layering of multiple risk dimensions rather than from single causal drivers.

This configurational perspective draws on transition scholarship, which conceptualises socio-technical change as the outcome of interacting pressures across structural, organisational, and institutional levels (Geels et al. 2017). Within such frameworks, outcomes are co-produced

through alignment, or misalignment, between regime structures, governance environments and actor strategies. Risk, in this sense, is not additive but relational. Structural exposure conditions organisational response where institutional volatility reshapes strategic sequencing and reputational pressure filters visible action. Each dimension modifies the operation of the others.

Empirically, structural throughput dependence provides the baseline constraint. High-volume demand cycles and fragmented value-chain governance limit the feasibility of systemic redesign (Gereffi 1994). Yet these structural conditions do not automatically determine outcomes. They are mediated by organisational routines that translate structural exposure into administratively manageable programmes (Kazancoglu et al. 2020). Institutional uncertainty encourages procedural alignment and standards adoption before infrastructural investment (Suarez-Visbal et al. 2024), while reputational pressures privilege externally legible and certification-backed initiatives (Lowe et al. 2025). The result is a layered configuration of risks in which structural constraints define feasibility boundaries, organisational routines turn systemic ambition into incremental governance formats, institutional volatility shapes sequencing and reputational exposure filters which initiatives are heightened. These layers reinforce one another with compliance-oriented standards providing communicable legitimacy, pilot programmes reducing organisational disruption, while satisfying institutional expectations and downstream loop-closure aligns simultaneously with structural feasibility and reputational visibility.

Through this interaction, CE implementation stabilises around selective and predominantly outer-loop forms of circularity. Foundational CE literature emphasises regenerative design, slowing of resource flows, and systemic value retention. Yet under the layered risk configuration observed here, recycling, material substitution, data transparency, and post-consumption stewardship become institutionally coherent responses. Outer-loop dominance is not simply a compromise, it is the product of interacting risk logics operating across levels.

This configurational account refines existing transition literature in two ways. First, it demonstrates that risk operates as a structuring condition within multi-level transitions, shaping not only whether change occurs but the form it takes (Fischer and Pascucci 2017). Second, it

shows that incremental and outer-loop strategies are co-produced by the intersection of throughput-dependent structures, administratively risk-averse routines, evolving regulatory expectations and visibility pressures. CE implementation thus reflects a patterned adaptation to layered institutional complexity rather than a linear progression toward systemic redesign.

The theoretical contribution of this study therefore lies in conceptualising CE implementation in the textile sector as configurationally structured. CE outcomes are produced through the interaction of structural, organisational, institutional and reputational risks that collectively stabilise particular transition pathways. By foregrounding interaction effects and layered risk, the analysis moves beyond barrier-based explanations and provides a mechanism-level account of why selective circularity persists within high-throughput industries.

4.3 CE Implementation pathways as stabilised configurations

The reconstructed pathways are best understood not as discrete strategic choices but as stabilised outcomes of interacting risk configurations. While Chapter 3 analytically differentiated Informational Proxification, Technocentric Incrementalism, Regulated Stewardship, and Narrative Legitimacy, their deeper significance emerges when interpreted comparatively. Across pathways, CE implementation converges around a shared institutional logic. Circularity becomes operationalised in forms that are administratively manageable, governance-compatible and compatible with throughput-dependent market structures.

A first shared structural feature is compatibility with high-throughput production systems. The textile sector is characterised by rapid consumption cycles, competitive time pressures, and fragmented buyer-driven value chains (McNeill and Moore 2015; Gereffi 1994). Within such contexts, interventions that directly challenge production volumes or revenue models carry more structural and organisational risk. Across pathways, circular ambition is therefore translated into measures that operate within existing growth logics rather than displacing them. This convergence suggests that the pathways are less alternative strategies than patterned adaptations to throughput-dependent institutional environments.

A second cross-cutting pattern concerns the institutionalisation of circularity through governance infrastructures. Reporting systems, traceability platforms, certification regimes and standards adoption emerge as central stabilising mechanisms. Circularity is rendered measurable, auditable and reportable before it is materially transformative. This governance-heavy orientation reflects broader transition dynamics in which regime adaptation often proceeds through procedural alignment and administrative expansion rather than immediate infrastructural restructuring (Fischer and Pascucci 2017). Under regulatory volatility and reputational scrutiny, procedural control provides an organisationally coherent response to uncertainty. Circularity thereby consolidates as a governance condition embedded in transparency regimes and compliance architectures.

Third, incrementalism operates as a stabilised mode of transition. Across pathways, circular interventions are phased, bounded or piloted rather than integrated into core production logics. Innovation appears as optimisation, stewardship as extension and communication as signalling. This pattern aligns with transition literature emphasising that socio-technical change frequently unfolds through incremental regime adjustment rather than abrupt transformation (Fischer and Pascucci 2017). Under layered risk conditions, incremental adaptation reduces exposure across structural, institutional and reputational dimensions simultaneously. What might otherwise be interpreted as insufficient ambition can instead be understood as a risk-minimising equilibrium within institutional complexity.

The Butterfly Model provides an illustration of these patterns. When initiatives are mapped across the model's technical and biological cycles, implementation is concentrated in the outer technical loops (recycling, post-consumption stewardship and material substitution), while inner-loop retention strategies and regenerative engagement remain comparatively limited. Foundational CE literature conceptualises value retention hierarchically, emphasising reuse, repair and longevity as higher-value strategies than recycling (Murray et al. 2017; Niinimäki et al. 2020b). The observed outer-loop bias therefore signals not conceptual absence of systemic ambition but structured prioritisation of technically feasible and governable interventions. Outer-loop concentration emerges as the spatial manifestation of layered risk configurations.

When interpreted collectively, the pathways demonstrate that CE implementation under risk stabilises around selective forms of circularity that align with incumbent institutional arrangements. Informational Proxification substitutes data control for material control, Technocentric Incrementalism combines efficiency gains with throughput preservation, Regulated Stewardship extends compliance frameworks into waste governance, and Narrative Legitimacy filters initiatives through communicative visibility. Despite their different areas of focus, each pathway come together on circular formats that are externally legible, administratively manageable and structurally compatible with existing growth-oriented systems.

The comparative significance of these findings lies in their theoretical implication. They show that risk does not merely condition whether CE is adopted, but also structures the institutional form circularity assumes. Under throughput-dependent markets, fragmented governance, regulatory evolution and reputational exposure, circularity stabilises as governance-mediated, incrementally adaptive, and outer-loop oriented. CE implementation thus reflects structured adaptation within layered institutional constraints rather than linear progression toward systemic redesign.

In this sense, the pathways illuminate a broader pattern in CE transitions within the textile industry where CE materialises selectively. Its operational form is configurationally stabilised through interacting risks that privilege administratively manageable and governance-compatible strategies. The comparative interpretation of pathways therefore strengthens the central argument of this chapter that CE transitions are shaped less by isolated barriers than by the structured interaction of risk dimensions that define feasible trajectories of change.

4.4 Implications for CE theory

The preceding analysis moves beyond barrier-based explanations of CE implementation and instead conceptualises risk as a structuring logic of transition. Instead of operating as isolated obstacles that prevent circularity, structural, organisational, institutional, and reputational risks shape the institutional form that circularity takes. This perspective refines dominant CE

transition narratives by demonstrating that implementation outcomes are configurationally produced under layered constraints.

Much of the CE literature frames risk and constraint as impediments to be overcome in order to realise systemic redesign (Murray et al. 2017; Niinimäki et al. 2020b), however findings suggest a different interpretation. They suggest that risk operates not only as resistance but as a selection mechanism. Within layered configurations of throughput-dependent market logics, fragmented value chains, evolving governance frameworks and legitimacy pressures, certain circular strategies become institutionally reasonable while others remain marginal. This implies that CE transitions should be analysed not only in terms of ambition versus implementation gaps, but in terms of how layered risk-environments structure feasible paths. Circularity becomes shaped by what can be coordinated, measured, communicated and governed within existing systems. Risk therefore contributes to patterned adaptation rather than simple blockage.

The findings also contribute to debates regarding incremental versus transformative transition. CE theory frequently emphasises systemic redesign, regenerative flows and decoupling from linear growth (Murray et al. 2017). However, transition literature highlights that socio-technical change often proceeds through incremental regime adaptation rather than abrupt restructuring (Fischer and Pascucci 2017).

The analysis indicates that under layered risk conditions, CE implementation stabilises in incremental forms because such forms minimise disruption across multiple dimensions simultaneously. Incremental adaptation reduces organisational exposure, aligns with regulatory sequencing and remains communicable under reputational scrutiny. What might appear as insufficient ambition can therefore be interpreted as the outcome of rational adaptation within institutional complexity. This suggests that incrementalism in CE transitions is not necessarily a temporary deviation from systemic ambition but actually represents a structurally stabilised equilibrium under throughput-dependent conditions.

A further implication concerns the prominence of compliance, standards and reporting infrastructures. Governance-heavy circularity appears as a dominant early-phase manifestation of CE. This pattern indicates that before material systems are restructured, governance architectures are expanded. From a theoretical perspective, this supports the view that institutional alignment precedes infrastructural transformation in many transitions. Under regulatory uncertainty and GVC fragmentation, firms first stabilise exposure through procedural adaptation. CE therefore initially consolidates as a governance condition embedded in transparency regimes, due diligence systems, and compliance mechanisms, before it materialises as deep structural redesign. This sequencing challenges implicit assumptions that regulatory expansion directly triggers transformative infrastructural investment. Instead, governance adaptation may constitute an intermediate stabilisation phase in which circularity is institutionalised administratively before it becomes materially embedded.

Finally, the analysis highlights the structural difficulty of regenerative and inner-loop transformation within high-throughput markets. CE theory places strong emphasis on slowing resource flows and maintaining products at their highest value for as long as possible (Murray et al. 2017; Niinimäki et al. 2020b). However, in markets structured around rapid consumption cycles and volume growth, such strategies challenge core revenue logics. Under these conditions, regenerative transformation requires simultaneous shifts in demand structures, organisational metrics and governance coordination. Layered risk configurations make such simultaneous shifts difficult to stabilise. As a result, regenerative ambitions tend to remain partial, experimental or rhetorically validated rather than structurally embedded. This does not imply that regenerative CE is unattainable. Rather, it suggests that its stabilisation depends on structural reconfiguration of throughput markets and governance regimes, not just on firm-level innovation. CE theory may therefore benefit from more explicit integration of political economy and market-structure analysis when theorising transition pathways.

Taken together, the pathways identified in this study indicate that CE implementation under risk is shaped by layered institutional complexity. Circularity becomes selectively operationalised through governance-compatible, incrementally adaptive and externally legible strategies. Systemic redesign remains theoretically central but institutionally demanding. The theoretical contribution of this study lies in conceptualising CE transitions as configurationally

structured processes in which risk operates as a generative mechanism. Rather than framing CE implementation as a linear progression toward systemic transformation, this perspective highlights how interacting risk dimensions shape the trajectory, depth and form of circular adoption.

5. Conclusion

5.1 Answer to the RQ and core findings

This thesis asked: *How do structural, organisational, institutional and reputational risks shape the implementation of CE initiatives in the textile industry, as observed through a qualitative case study?*

This thesis shows that structural, organisational, institutional and reputational risks shape CE implementation by interacting to stabilise specific forms of circularity. Through a staged analysis that first mapped CE initiatives, then identified recurring risk dimensions and finally reconstructed stabilised implementation pathways, the study demonstrates that circularity does not unfold as systemic redesign or linear transition toward regenerative production models. Instead, it stabilises in forms that are outer-loop oriented, governance-mediated and incrementally adaptive under layered risk exposure. CE implementation emerges not from isolated barriers or singular drivers, but from the interaction of multiple risk dimensions that collectively define what is institutionally feasible, administratively manageable and publicly legitimate within high-throughput markets.

At the mechanism level, structural risk operates as a selection environment that privileges efficiency-compatible and downstream interventions within fragmented, buyer-driven value chains. Organisational risk functions as a conversion mechanism, translating structural exposure into bounded and incremental programmes aligned with existing routines and performance metrics. Institutional risk structures the timing of transformation by prioritising procedural alignment and standards adoption before infrastructural redesign. Reputational risk serves as a filtering mechanism, amplifying initiatives that are externally legible, certification-backed and communicable while marginalising less visible but potentially more transformative interventions. Through their interaction, these mechanisms stabilise selective circularity. CE implementation in the textile sector is in this way shaped by layered risk configurations that privilege governance-compatible and outer-loop strategies over systemic contraction or deep upstream restructuring.

5.2 Theoretical contribution

This study advances CE literature by moving beyond barrier-based explanations of implementation. Much of the CE implementation literature identifies structural constraints, organisational inertia, regulatory gaps or consumer behaviour as obstacles to systemic transition. While analytically useful, such accounts often treat these factors as discrete impediments that prevent otherwise coherent circular strategies from unfolding. The present study demonstrates that CE implementation in the textile sector is not best understood as stalled by isolated barriers. Rather, it is configurationally structured. Risk does not only hinder circular ambition, it operates as a structuring condition that shapes which forms of circularity become institutionally viable under specific socio-technical conditions.

By integrating CE theory with multi-level transition theory, this thesis reframes implementation as a process embedded within regimes characterised by throughput dependency, fragmented governance and layered institutional complexity. Foundational CE literature emphasises regenerative design, value retention hierarchies and systemic slowing of resource flows. Transition theory in turn conceptualises socio-technical change as emerging through interactions across landscape, regime and niche levels. This study connects these perspectives by demonstrating how structural exposure, organisational routines, institutional volatility and reputational contestation interact across levels to produce patterned adaptations. CE implementation stabilises in forms that reconcile environmental ambition with regime stability instead of progressing linearly toward systemic redesign.

The core conceptual innovation lies in treating risk as a relational and multi-level structuring mechanism. Structural risk operates as a selection environment that privileges efficiency-oriented and downstream interventions. Organisational risk functions as a conversion mechanism, translating systemic ambition into administratively manageable programmes. Institutional risk acts as a temporal structuring mechanism, sequencing commitments toward procedural alignment before infrastructural transformation. Reputational risk serves as a filtering mechanism, amplifying initiatives that are externally legible and certification-backed. Individually, these risks constrain and shape implementation. In interaction, they produce

stabilised configurations that privilege outer-loop, governance-mediated and incrementally adaptive forms of circularity.

Empirically, the study operationalises configurational causation through qualitative pathway reconstruction. By linking initiative mapping, risk mechanisms and spatial positioning within the Butterfly Model, it demonstrates how layered risk configurations materialise in patterned implementation pathways. Informational Proxification substitutes data control for material control. Technocentric Incrementalism reconciles efficiency gains with throughput preservation. Regulated Stewardship extends compliance architectures into post-consumption governance. Narrative Legitimacy filters interventions through communicative visibility. The butterfly mapping provides a spatial synthesis of these dynamics, revealing systematic concentration in outer technical loops while inner-loop and regenerative strategies remain marginal. This outer-loop dominance emerges not as conceptual failure, but as a configurational outcome of interacting risk dimensions.

The broader theoretical implication is that CE transitions in high-throughput industries are shaped less by the absence of ambition than by structured adaptation under layered risk exposure. CE materialises selectively. Governance expansion, incrementalism and outer-loop prioritisation are not accidental deviations from systemic ideals but institutionally reasonable responses within fragmented and growth-oriented regimes. By foregrounding interaction effects and layered risk, the study moves beyond single-driver explanations and offers a mechanism-level account of why selective circularity persists.

In doing so, this thesis contributes to both CE theory and transition theory. For CE research, it clarifies why value-retention hierarchies and regenerative ambitions often fail to translate into dominant practice in fast-moving industries. For transition theory, it provides an empirical specification of how risk operates within regime adaptation, shaping not only whether change occurs but the institutional form it assumes. The configurational approach developed here therefore offers a transferable analytical lens for examining sustainability transitions in other high-throughput sectors characterised by similar structural and institutional conditions.

5.3 Methodological reflections

This study employed a qualitative case study design based on systematic document analysis. Such an approach is particularly suited to reconstructing how organisations articulate strategies, frame constraints and formalise commitments within publicly available texts. Case studies enable in-depth exploration of complex phenomena in their real-life context, while prioritising analytical richness over statistical generalisation (Stake 1995; Flyvbjerg 2006). In this thesis, document analysis provided access to how CE initiatives and risk considerations are codified, justified and communicated within the Varner Group's formal governance and reporting structures.

A central strength of this design lies in its capacity to treat documents not merely as sources of information but as institutional artefacts that structure organisational meaning. Corporate reports, codes of conduct and policy statements are performative texts that stabilise expectations, define boundaries and signal alignment with regulatory and market environments. Analysing these texts made it possible to reconstruct risk as an empirically observable mechanism, visible through feasibility claims, eligibility rules, anticipatory alignment and communicative framing. This in turn enabled the identification of interacting risk configurations and the reconstruction of implementation pathways without relying on retrospective accounts or subjective interpretation of internal actors' intentions.

The design allows this study to make explanatory claims about how CE implementation is structured at the level of formal articulation and organisational positioning. It supports conclusions regarding patterned risk framing, pathway stabilisation and the interaction between structural, organisational, institutional and reputational dimensions as they appear in documented practice. Consistent with qualitative case study logic, the findings contribute analytical insight rather than statistical representativeness.

At the same time, the design delineates clear boundaries of inference. Document analysis does not provide direct access to internal deliberations, informal negotiations or unrecorded decision-making processes. Nor does it permit evaluation of performance outcomes, environmental impact or the material effectiveness of circular initiatives. The study therefore

refrains from assessing the substantive success of CE implementation. Its claims are confined to how CE is articulated, structured and stabilised within the documented practices of the case organisation. In this sense, the methodological choice is aligned with the RQ, which seeks to explain how risk shapes implementation rather than whether implementation achieves predefined outcomes. The qualitative case study design therefore offers an appropriate and analytically coherent framework for reconstructing CE pathways under conditions of structural constraint and regulatory evolution.

5.4 Limitations and conditions

This study is based on a single qualitative case design. As noted in case study methodology, such designs prioritise contextual depth and analytical development over statistical representativeness (Stake 1995; Flyvbjerg 2006). The findings therefore do not aim to establish generalisable regularities across the textile industry. Instead, they offer an analytically grounded reconstruction of how risk structures CE implementation within one organisational setting. The contribution lies in theoretical refinement through intensive examination rather than in empirical breadth.

The reliance on document-based data further defines the scope of inference. Corporate reports, policy statements and publicly available materials provide access to formal articulations of strategy, governance alignment and organisational positioning. However, documents are selective representations shaped by reporting standards, communicative objectives and institutional expectations. The analysis therefore captures how circular initiatives and risk considerations are codified and stabilised in formal discourse. It does not provide direct insight into internal deliberations, informal practices or the material effectiveness of initiatives. The explanatory claims are confined to documented articulations and their patterned configuration.

Contextual specificity also conditions the transferability of findings. The Varner Group operates within a Scandinavian regulatory environment and within global textile value chains characterised by fragmentation and infrastructural interdependence (Gereffi 1994; OECD 2013). Regulatory staging at the European level and market dynamics within the Nordic context form part of the structural and institutional backdrop to the reconstructed pathways

(European Commission 2022; Niinimäki et al. 2020a). Firms operating under different governance regimes, market pressures or supply chain structures may exhibit alternative configurations of risk and implementation. The pathways identified here should therefore be understood as contextually situated analytical constructs rather than universally applicable models.

These limitations do not diminish the analytical value of the study. In line with qualitative case study logic, the findings support analytical generalisation, meaning that concepts such as interacting risk configurations and stabilised implementation pathways may inform theoretical reasoning beyond the immediate case (Flyvbjerg 2006). Their applicability depends on the presence of comparable structural and institutional conditions rather than on statistical representativeness. The study offers a theoretically informed account of how CE implementation can be structured under specific sectoral and governance conditions, while remaining bounded by the contextual parameters within which the case unfolds.

In high-throughput industries like textile, CE materialises selectively. The findings of this thesis show that selective circularity is not accidental but configurationally stabilised through interacting structural, organisational, institutional and reputational risks. Understanding how layered risk environments shape the institutional form of circularity is therefore essential for advancing both CE theory and transition policy in sectors characterised by growth dependency and fragmented governance.

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