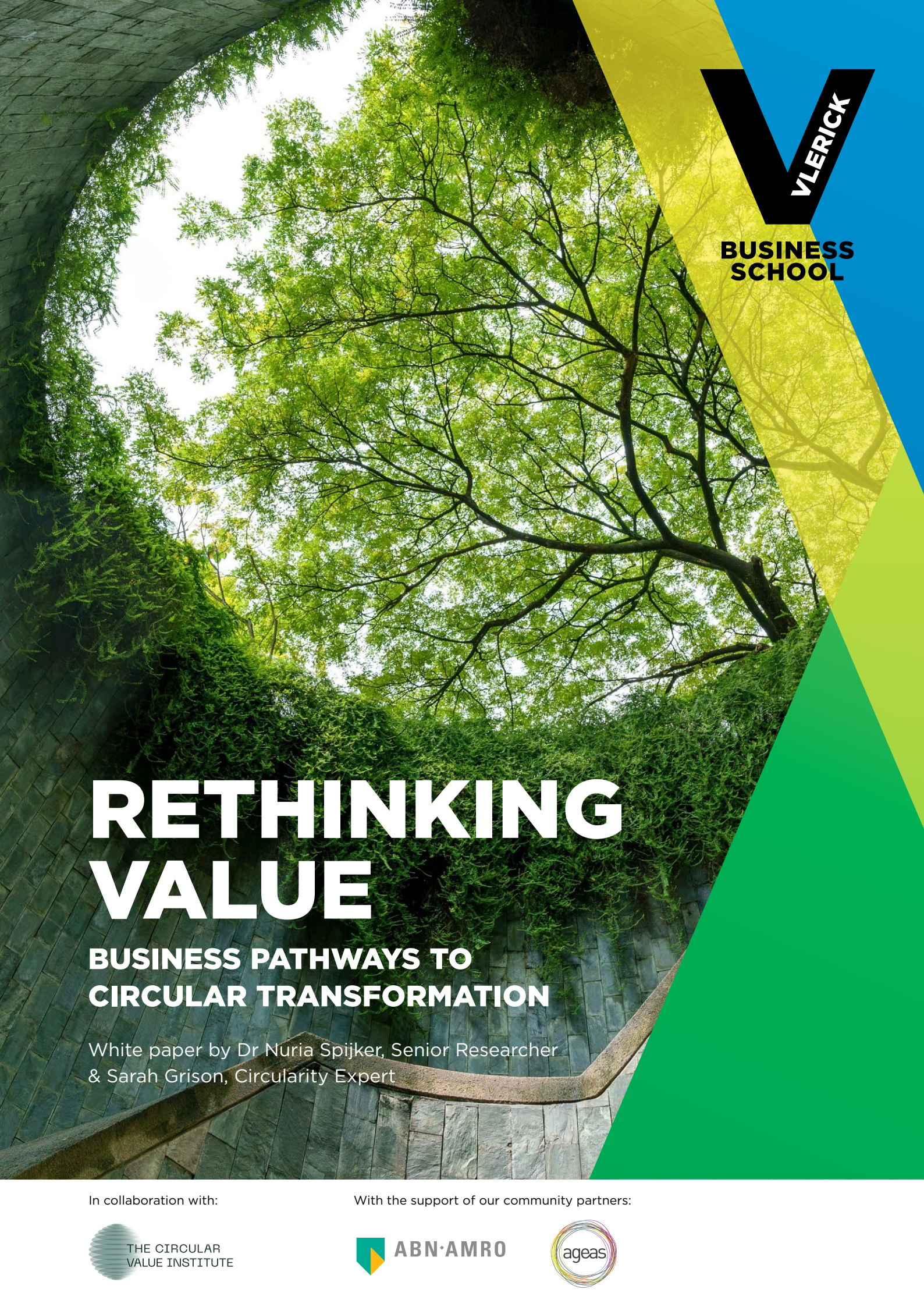




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RETHINKING VALUE

BUSINESS PATHWAYS TO CIRCULAR TRANSFORMATION

White paper by Dr Nuria Spijker, Senior Researcher
& Sarah Grison, Circularity Expert

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The Circular Value Institute aims to foster awareness and understanding of circularity within the financial sector and beyond. Its primary mission is to unlock funding for materials with significant circular value, thereby facilitating the transition to more sustainable business practices. The institute focuses on creating economic incentives that support the shift from a linear to a circular economy. Discover more about the Circular Value Institute, its services, and its key methodologies at circularvalueinstitute.com.

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EXECUTIVE SUMMARY

Circularity is gaining momentum as a strategic alternative to the linear “take-make-waste” economy. As environmental and resource pressures intensify, circular models prioritise long-term value, material stewardship, and systemic resilience by decoupling value creation from resource consumption. They keep products and materials in use through modular design, reuse, re-manufacturing, and product-as-a-service models – supported by enabling tools such as Digital Product Passports and sustainability-linked finance.

To support more integrated implementation, this white paper highlights 5 foundational perspectives: systems thinking and industrial ecology, design for circularity, value creation through circular business models, enabling mechanisms such as regulation and finance, and behavioural enablers. Together, these perspectives provide a structured foundation for understanding and implementing circularity across business and policy contexts.

In Europe, circularity is becoming embedded in regulation and market expectations. Policy instruments like the Circular Economy Action Plan, the Ecodesign for Sustainable Products Regulation, and the Clean Industrial Deal are reshaping how companies approach compliance, innovation, and investment.

Drawing on cross-sector case studies from construction and food to finance and retail, this white paper illustrates how circularity is being translated into business models, procurement systems, and design strategies. These examples show that successful circular transformation requires bold leadership, collaboration, and a willingness to rethink value across the entire lifecycle.

These foundations are translated into action through 7 strategic levers that support embedded, scalable circular transformation across sectors. Synthesising insights from theory and practice, these levers form a coherent framework for business decision-making and long-term value creation.

KEY TAKEAWAYS

- Circularity enables value to be created multiple times, making it a key driver of resource-efficient, sustainable business.
- Its impact is greatest when adopted as a cross-cutting strategy, and not treated as a stand-alone sustainability initiative.
- Organisational culture, leadership, and behavioural change are as critical as technical solutions.
- EU policy momentum is accelerating uptake through regulation, finance, and public procurement.
- Firms like ABN AMRO, Barco, Knauf Insulation, JUUNOO, IKEA, and Südzucker demonstrate that circular models can unlock resilience, innovation, and stakeholder trust.
- Businesses that embed circularity across functions, co-create with partners, and align it with broader sustainability goals are best positioned for the future.

As circularity becomes a defining feature of Europe’s industrial landscape, the task ahead is clear: build on what works, invest in enablers, treat circularity as a shared responsibility, and scale the partnerships and capabilities needed for lasting transformation.

1

BUILDING CIRCULAR VALUE: BUSINESS PATHWAYS TO CIRCULAR TRANSFORMATION

As global businesses face mounting pressure to reduce environmental impacts and improve resource efficiency, circularity is emerging as a strategic alternative to the dominant linear model. The “take-make-waste” approach is becoming increasingly untenable in the context of resource scarcity, ecological degradation, and escalating waste streams.

In contrast to this resource-intensive trajectory, the circular economy promotes a system that keeps products, materials, and resources in use for as long as possible, thereby minimising waste and generating long-term value (Ellen MacArthur Foundation, 2019; World Economic Forum, 2023). In doing so, it offers a pathway to bring resource use back within safe ecological limits. Yet, according to the Circularity Gap Report 2025, the global economy remains overwhelmingly linear: only 7.2% of materials are cycled back into use, down from 9.1% in 2018. This widening disconnect between ambition and reality is further compounded by a global material footprint exceeding 100 billion tonnes per year, contributing significantly to planetary boundary overshoot (Circle Economy, 2025).

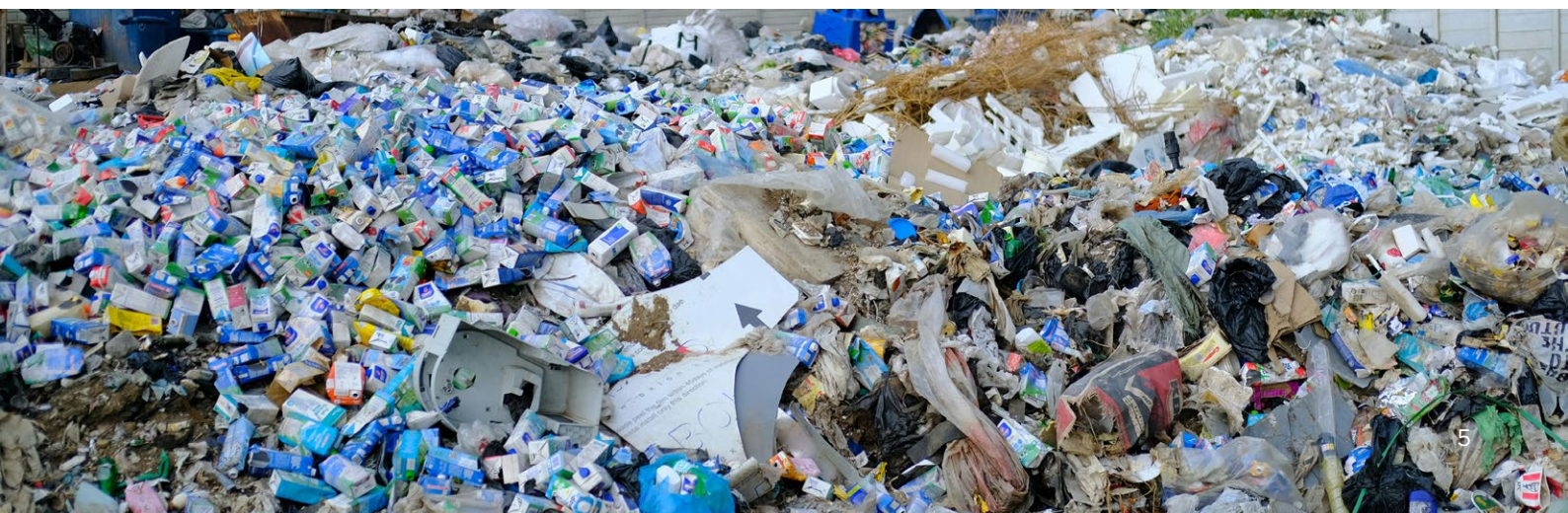
Recycling is only one element of a broader circular transformation. Circularity today involves rethinking how value is created, preserved, and regenerated across entire product and service lifecycles (Bertassini et al., 2021; Asgari & Asgari, 2023).

It replaces end-of-pipe solutions with design principles that guide value creation from the outset. Increasingly, circularity is also being recognised as a critical lever for achieving climate goals and safeguarding biodiversity (Circle Economy, 2025).

This shift is not just technical – it is systemic. It calls for coordinated action across the value chain, involving designers, manufacturers, consumers, regulators, and financiers in a shared effort to minimise waste and maximise resource value. Achieving this requires integrated, cross-sectoral strategies that align economic viability with environmental sustainability and social impact.

The Circularity Gap Report 2025 highlights 3 priority sectors – construction, agri-food, and manufactured goods – in which targeted circular strategies could deliver rapid environmental and economic benefits (Circle Economy, 2025). These opportunities underscore the need to redefine how value is generated, preserved, and distributed across economic systems.

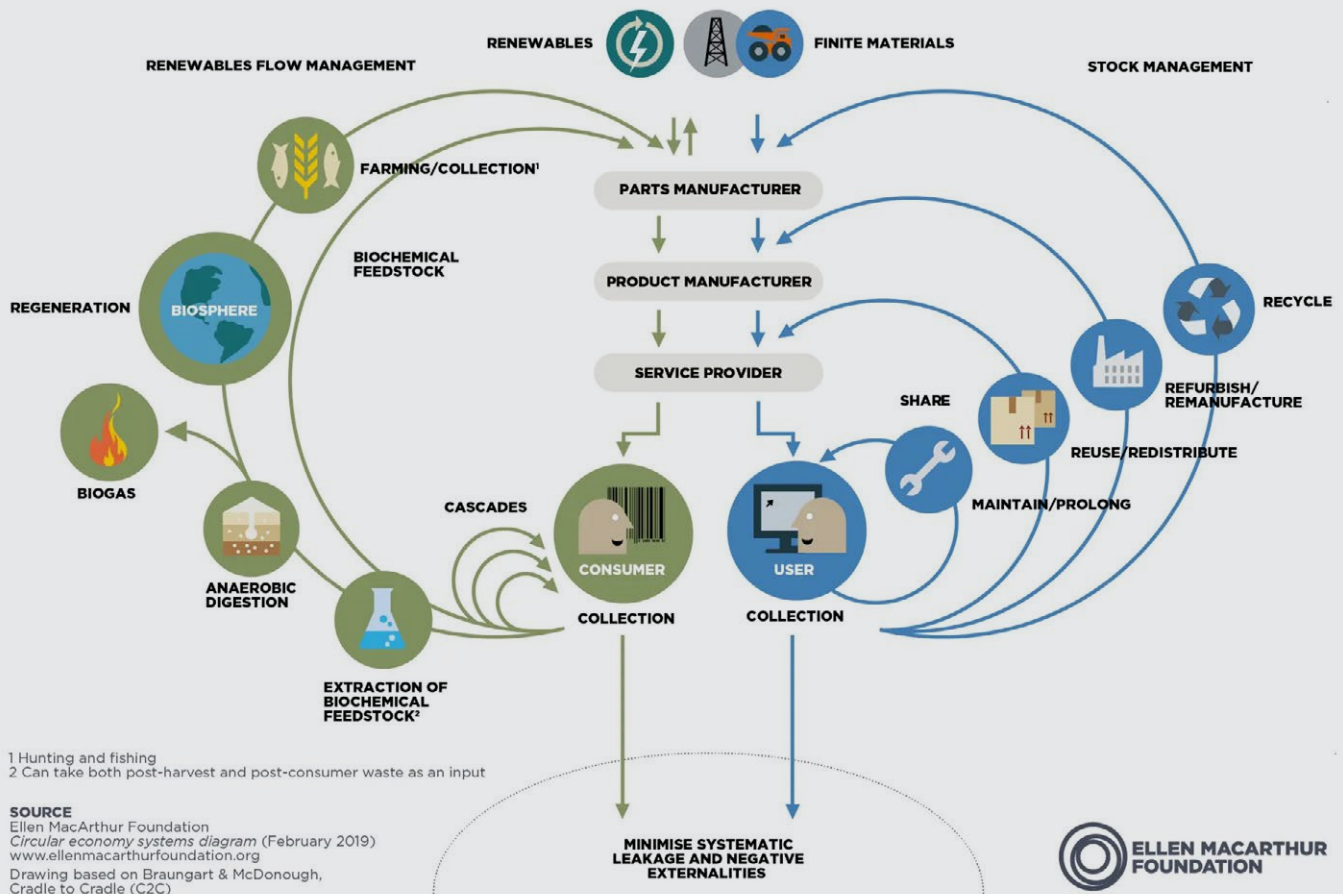
This white paper maps the foundational perspectives shaping circular economy thinking and shows how they are already taking root across sectors, offering a shared lens for understanding how circular strategies are being designed, implemented, and scaled in practice.



1.1. FOUNDATIONAL PERSPECTIVES OF CIRCULAR TRANSFORMATION

Circularity can be defined as an economic model that de-couples value creation from resource consumption and prioritises long-term material stewardship over end-of-life disposal (Kirchherr et al., 2018). The ISO 59040:2025 standard provides a common language for practitioners by defining circular economy frameworks in terms of material

flows, system boundaries, and performance measurement. Foundational models such as the Ellen MacArthur Foundation's (2019) 'Butterfly Diagram' and Achterberg et al.'s (2016) 'Value Hill' further distinguish between biological and technical cycles and offer guidance for retaining value over time.



Source: Ellen MacArthur Foundation (2019) - [Butterfly Diagram](#)

Importantly, circularity involves more than isolated interventions. It is a systems-based design principle that re-orientes industrial logic toward regeneration, resilience, and collaboration. It requires alignment across the entire value chain, from the earliest design decisions to strategies for reuse, repair and material recovery at end-of-life. Realising its full potential depends on businesses, consumers, regulators, and investors embedding circular strategies throughout every phase of a product's lifecycle (Asgari & Asgari, 2023).

The circular economy is not a single theory or method, but a convergence of perspectives that seek to redesign how value flows are structured, maintained, and extended across systems. To explore this convergence, the remainder of this section outlines 5 foundational perspectives that frame circularity as both a guiding principle and a practical strategy. As circularity gains ground in business, policy, and finance, it becomes essential to understand the frameworks that support its implementation. The following perspectives, grounded in systems theory, industrial ecology, and design-led innovation, provide both conceptual clarity and practical guidance. They help distinguish meaningful transformation from superficial measures and establish a foundation for the sector-specific approaches explored later in this white paper.

These perspectives have shaped how circularity is being adopted across sectors such as construction, manufacturing, food and beverage, digital services, and finance, as is showcased in the cases highlighted in this white paper. Their relevance continues to grow in the context of the European Union's Circular Economy Action Plan (European Commission, 2020a) and, more recently, the Clean Industrial Deal (European Commission, 2025) – both of which aim to accelerate the green and digital transformation of Europe's industrial base. Achieving these ambitions requires more than technological innovation. It demands a re-framing of how we understand resources, value, and responsibility.



1.1.1. Systems Thinking and Industrial Ecology

Circularity begins with a shift in mindset from linear to systems thinking. While linear models focus on isolated stages of production and consumption, systems thinking examines interdependencies, feedback loops, and the broader consequences of design and operational choices. In a circular context, this includes understanding how product design affects reuse and recycling, how consumption patterns shape material flows, and how the by-products of one industry can become inputs for another (Robinson, 2022).

This perspective supports collaboration across sectors and integration across the entire product lifecycle. It moves away from reactive waste management toward proactive system design. The EU's Circular Economy Action Plan (CEAP) reflects this thinking by integrating design, service models, consumption, and end-of-life management into a coherent policy vision (European Commission, 2020a; 2020c). For businesses, systems thinking enables the creation of circular value chains that anticipate risk, strengthen resilience, and identify synergies across internal and external operations (World Economic Forum, 2023).

While systems thinking provides a holistic lens for understanding feedback loops, interdependencies, and lifecycle consequences, industrial ecology translates that lens into concrete strategies grounded in ecological science. It views industrial systems as ecosystems, with material and energy flows designed to mimic natural cycles. This perspective moves beyond abstract interconnection to focus on measurable flows, metabolic efficiency, and tangible exchanges between actors. It views the economy as a material metabolism in which resources should flow in continuous loops rather than open-ended lines. This scientific framing supports strategies such as materials recovery, by-product exchange, and the development of eco-industrial parks.

A defining feature of industrial ecology is industrial symbiosis: the mutually beneficial exchange of energy, water, or materials between co-located or digitally connected firms (Frosch & Gallopoulos, 1989; Chertow, 2007).

A well-known example is the Kalundborg Symbiosis in Denmark, where more than a dozen companies are engaged in a dense network of resource-sharing relationships. These firms exchange multiple resource flows, including surplus heat, steam, water, and various by-products, in intersecting loops that link operational performance across the network. The environmental benefits of these exchanges vary from substantial to modest, but the collective gains are significant.

As Jacobsen (2006) notes, the primary motivations are often tied to improving upstream and downstream performance rather than the direct value of the exchanged material. This underscores that industrial symbiosis delivers value not just through individual transactions, but by fostering a system-wide approach to sustainability rooted in shared efficiency, trust, and mutual advantage. More recently, symbiotic networks have emerged in construction and agri-food systems, such as the Śmiłowo Eco-Industrial Park in Poland, where waste from meat processing and agriculture is converted into energy and fertilisers (Kowalski et al., 2023). These examples illustrate how industrial ecology can reduce raw material dependency, increase energy and resource efficiency, and integrate material recovery into core industrial processes.

While initially applied in heavy industry, the principles of industrial ecology are increasingly relevant across broader sectors, including construction, energy systems, and agriculture. The Clean Industrial Deal positions industrial symbiosis as a key enabler of regional decarbonisation and competitiveness, particularly in material-intensive sectors. It provides a foundation for capturing circular value through reduced raw material dependency, improved efficiency, and embedded recovery systems. For sectors managing large volumes of material – such as building materials, food processing, and manufacturing – this perspective is especially

relevant. These insights set the stage for understanding how early-stage decisions – design choices, in particular – affect reuse, recycling, and lifecycle outcomes.



1.1.2. Design for Circularity

Circularity begins at the design stage, where up to 80% of environmental impacts are determined (European Commission, 2012). At the product level, circular design focuses on **durability, modularity, and reparability** to extend lifespan and enable reuse or refurbishment (Taranic et al., 2016). Modular electronics, such as the Fairphone, exemplify this approach, with components designed for easy disassembly and replacement. Resource-efficient design complements this by minimising the use of virgin materials while optimising product performance and energy use.

These strategies form the foundation of **eco-design** frameworks, which expand the focus from individual products to system-level impacts across the lifecycle (Van Doorselaer, 2022). Eco-design embeds circularity into design standards, regulatory criteria, and corporate practice. It supports a shift from minimising harm to designing for long-term resilience. These principles are embedded in the EU's Ecodesign Directive and the upcoming Ecodesign for Sustainable Products Regulation, which broadens requirements across a wider range of products and metrics (European Commission, 2024).

Regenerative design, by contrast, aims not only to reduce harm but to generate positive ecological and social outcomes. It involves creating systems, products, and built environments that contribute to ecosystem restoration, such as improving biodiversity, regenerating soil, or producing clean energy (Blanco et al., 2021). Where eco-design asks how to reduce impact, regenerative design asks how to improve system health. Although regenerative approaches are still emerging, they are increasingly supported by EU funding mechanisms focused on nature-positive innovation and urban resilience.



Biomimicry complements these frameworks by drawing inspiration from nature. Natural ecosystems are inherently circular: outputs become inputs, and materials are cycled efficiently. Biomimicry applies this logic to design, leading to solutions like self-cleaning surfaces based on lotus leaves, mycelium-based packaging that mimics nutrient cycling in ecosystems while offering compostable alternatives to synthetic materials, or passive building ventilation inspired by termite mounds (Benyus, 1997; Chayaamor-Heil, 2023; Al Haj Eid & Al-Abdallah, 2024). It encourages long-term thinking, helps align industrial systems with ecological principles, and reduces reliance on extractive models.

All together, these approaches frame design as a strategic enabler of circularity, guiding not only product innovation but also business model transformation. As businesses evolve from eco-design to nature-positive innovation, they shift from efficiency to system renewal, a direction increasingly supported by EU funding and innovation programmes (Mang & Reed, 2012). Many organisations begin with eco-design principles, achieving measurable improvements through efficiency and substitution, and evolve toward regenerative design as they reframe their business models and value propositions. For sectors with significant material and environmental impacts, such as agriculture and construction, this shift offers the potential for deep transformation (Mang & Reed, 2012). As these design-led strategies gain traction, they begin to reshape not only products, but the very business models through which value is created and retained.



1.1.3. Value Creation: Business Models and Economic Logic for Circularity

Circular transformation reshapes how value is created, delivered, and sustained. This section explores the business rationale for circularity, the innovative models enabling it, and the broader shift in economic logic that supports systemic change.

Unlocking Circular Value

A core principle of circularity is to keep materials and products at their highest possible value for as long as possible. This includes reuse, which involves using products again without significant alteration, typically for the same purpose. Refurbishment refers to restoring products to a functional state through cleaning, repair, or minor upgrades, often extending their life without returning them to a 'like-new' condition. Re-manufacturing goes a step further by disassembling and rebuilding products to meet original specifications, often with new or upgraded components, while retaining some reused parts. The circular economy is not only about preserving value but also about creating new economic opportunities. Products designed for these strategies can generate multiple revenue cycles through resale, rental, or service-based models. Each time a product is prepared for reuse and reintroduced to the market, it has the potential to deliver new income, customer engagement, and avoided material costs.

Recycling, in contrast, breaks materials down for reprocessing. The value retained or created depends on the outcome of the process. If the recycled material is turned into a product of lower quality or functionality, thus limiting its future use, the process is called downcycling (Helbig et al., 2022). If the recycled output retains or improves material performance and use value, it is referred to as upcycling (Wegener, 2016; Korley et al., 2021). For example, textile waste

can be transformed into high-performance insulation or fashion-grade fabric, whereas low-grade recycling may yield industrial rags or filler material. Understanding these distinctions is critical for designing effective circular strategies that preserve material quality across multiple life cycles. Moreover, recycling outcomes are also shaped by the capacity of existing infrastructure: small-scale recycling is often inefficient or unprofitable, underscoring the need for design strategies that facilitate high-quality recovery and value preservation at scale (Akinlabi & Akinlabi, 2023).

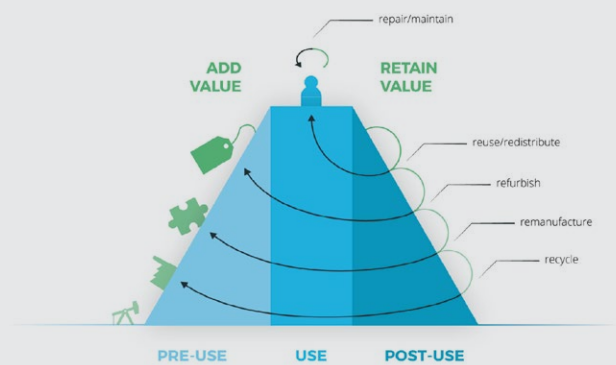
To evaluate the economic viability of these circular loops, the Circular Value Index (CVI), developed by the Circular Value Institute, provides a practical assessment tool (Grisson & Rapsaet, 2024). It compares a product's residual value (after use) to the cost of reuse and the associated risks, such as regulatory complexity or technical feasibility. A higher CVI indicates greater potential for value retention and circular profitability. It supports companies in determining which products are most suitable for circular innovation and consequently form the basis for profitable business models, whether through leasing, product-as-a-service, buy-back schemes, or other circular strategies.

Importantly, the CVI also enables investors and financial partners to assess the potential of circular materials as an investment opportunity. By quantifying the expected future profit from reusing or upcycling a product, it offers a clearer picture of the long-term financial returns associated with circular practices.

By continuously extending product utility and aligning business models accordingly, companies can shift from one-time transactions to ongoing value generation, while supporting a more resource-efficient and resilient economy.



Source: The Value Hill in a linear economy from [Achterberg et al., \(2016\)](#).



Source: The Value Hill in a circular economy from [Achterberg et al., \(2016\)](#).

Circular Business Models and the Performance Economy

To translate circular value into practice, companies are adopting business models that shift revenue generation from one-time sales to services or usage outcomes – a shift aligned with the systemic principles of the performance economy (Stahel, 2010). These models retain ownership or integrate value recovery at the point of sale, encouraging providers to take responsibility for maintenance, performance, and end-of-life recovery. In product-as-a-service systems, customers pay for outcomes like lighting or mobility, while businesses design for longevity, reparability, and reusability to maintain profitability (Stahel, 2019). This approach aligns business incentives with material stewardship and is gaining traction across electronics (leasing and trade-in models), mobility (shared transport), lighting and appliances (service offerings), construction (reintegrating reusable components), and emerging applications in digital infrastructure and finance.

Signify's 'Lighting as a Service' illustrates how service-based models function in practice. By leasing lighting systems and managing their lifecycle internally, Signify reduces waste and energy use while retaining

control over valuable materials. In sectors where full-service models are less feasible, such as real estate, businesses are adopting hybrid approaches. These include buy-back programmes, extended warranties, and circular discounts that factor in a product's expected residual value at the point of initial sale. Circularity clauses included in initial contracts can formalise service-based or hybrid circular business models. These clauses define responsibilities and rights at the end of use, creating legal clarity and enabling reuse, refurbishment, or resale. In some cases, the product's residual value can be assessed using the Circular Value Index (CVI), supporting business model planning by indicating its potential for high-value recovery.

The performance economy represents a broader shift in how value is measured and delivered. Evidence shows that well-designed product-service systems can reduce environmental impacts by improving product utilisation and extending useful lifespans, although success depends on lifecycle thinking and responsible implementation (Sarasini et al., 2024). The EU's CEAP supports performance-based models to help decouple growth from material use. These models open up new financial and service opportunities, especially in sectors adapting

to digitalisation and resource constraints. The Circular Value Institute highlights how leasing and buy-back schemes can unlock both environmental and economic value. When high-circular-value products are placed in systems designed for repeated use, value can be shared across manufacturers, users, logistics providers, and financiers. This shifts the business focus from throughput to stewardship and long-term service delivery. To scale these models, however, companies require supportive policy, finance, and legal frameworks that align incentives with circular outcomes.

Yet circular business models are not immune to rebound effects. At the consumer level, this occurs when efficiency gains lower costs and thereby encourage increased consumption, offsetting environmental benefits. At the firm level, increased product longevity or reuse may reduce unit sales, prompting companies to expand their market scope or introduce complementary offerings to maintain revenue; actions that can also offset material savings. These dynamics highlight the importance of pairing circular design with broader changes in consumption patterns and lifecycle assessment.



1.1.4. Mechanisms for Circularity: Digital, Regulatory, Financial, and Legal

The transition to circularity is supported by emerging tools and financing mechanisms that help ensure accountability and traceability across the value chain. Digital technologies such as the Internet of Things (IoT), artificial intelligence, and blockchain support circular models by improving traceability, predictive maintenance, and secure data sharing (Bressanelli et al., 2022). Their potential is significantly enhanced when combined with clear regulatory frameworks. For example, Digital Product Passports (DPPs), now gaining traction through European regulation, provide transparency on a product's composition, maintenance, and recyclability across the value chain (Walden et al., 2021; Jensen et al., 2023; European Commission, 2024). These

tools complement financial mechanisms by increasing transparency and operational efficiency.

These digital tools work alongside regulatory mechanisms that require producers to ensure circularity throughout product lifecycles. Extended Producer Responsibility (EPR), for instance, creates obligations for producers to manage product take-back and recycling, thereby encouraging circular design and end-of-life management (OECD, 2024). EPR systems require producers to finance or operate waste management and material recovery for certain products. Successful implementation depends not only on producer engagement but also on governmental capacity to effectively administer and enforce these systems.

Challenges include managing the cross-border movement of used goods and the harmonisation of schemes across regions, both critical for effective and cost-efficient circularity (Brown et al., 2023). At the same time, the EU Taxonomy acts as a complementary policy instrument driving the use of reused and recycled materials, especially in construction and other material-intensive sectors, by linking circular performance to investment eligibility (European Commission, 2020b; Barrie et al., 2023).

Finance plays a crucial enabling role. Circular principles are increasingly being integrated into investment criteria, using tools such as green bonds, sustainability-linked loans, dedicated funds, and impact investing frameworks to channel capital toward circular business models (European Commission, 2020b; Bocken et al., 2021). Tools such as scorecards and data platforms are still emerging, but the signal is clear: circularity is beginning to shape capital allocation (Saidani et al., 2019). Circular products that retain or increase value over time present compelling investment potential. However, alternative business models often require upfront financing, as the residual value is realised only after the product's use phase. As a result, financial actors often seek greater assurance of long-term value. In parallel, enabling mechanisms such as targeted

funding, supportive regulation, and public-private investment can help address key bottlenecks, including limited or inefficient recycling infrastructure, making circular strategies more practical and scalable.

Complementing financial mechanisms, legal tools are shaping how circular business models can scale by addressing structural financing challenges. Traditional circular sales models, where the product is sold to the customer, can create financing issues because the product is no longer eligible as collateral. In construction, this is sometimes addressed through a building lease model. For example, a supplier may retain ownership of technical systems such as a façade or heating installation, while the building right is still treated as real estate. This allows the developer to access mortgage financing while the supplier remains responsible for maintenance and recovery.

Two additional mechanisms – assignment of receivables and transfer of debt – can help strengthen financial stability in circular business models. In ‘assignment of receivables’, the producer hands over a future payment they are expecting – for example, a promised discount the customer will receive when returning a used product – to a financier. This gives the financier the right to collect that payment, allowing the producer to access cash earlier. In ‘transfer of debt’, the producer’s responsibility to buy back the product at the end of its use is passed to a financier. The financier decides whether to take this on based on how valuable the product will be when returned. If the product scores high on the [Circular Value Index \(CVI\)](#), which means that it is easy to refurbish or resell, the financier is more likely to accept the risk.

All of these mechanisms can be contractually consolidated through a standardised circularity clause. Designed to comply with Belgian law and adaptable across EU member states, this type of clause serves as a foundational legal tool to support circular transactions and reduce legal uncertainty within a harmonised legal framework (Verheye et al., 2024).

Yet challenges remain. Fragmented infrastructure, unclear standards, and capacity gaps, particularly for SMEs, can slow circular adoption. Additionally, digital enablers such as IoT, AI, and blockchain also consume considerable energy and critical materials, which must be factored into lifecycle assessments to ensure their overall benefit. Addressing these challenges calls for stronger public-private coordination and investment in skills, infrastructure, and harmonised metrics. That said, even with robust digital, regulatory, financial, and legal mechanisms in place, the success of circular strategies often hinges on an overlooked factor: human behaviour and organisational culture.



1.1.5. Behavioural Enablers of Circularity

Transitioning to a circular economy is not just a technical or economic shift. Another essential piece of the puzzle is behavioural change across organisations. Many firms recognise that mindset, habits, and internal culture are critical to success, yet these factors are often under-addressed (Ritzen & Sandström, 2017; De Jesus & Mendonça, 2018). Circular strategies can stall when employees resist change, managers prioritise short-term gains, or roles and responsibilities remain unclear (Kirchherr et al., 2018; Jabbour et al., 2020).

Conversely, companies that foster a circular mindset through leadership buy-in, staff training, and clear accountability are more likely to integrate circularity into their core business. A supportive internal culture and alignment between circular principles and corporate values can accelerate progress, especially when tied to performance indicators such as product lifespan or recycled content (Assmann et al., 2023). Breaking the grip of linear thinking requires deliberate change management, from retraining teams and adjusting incentives to redefining success beyond throughput and short-term margins.



At the societal level, behavioural change is shaped mutually by businesses, consumers, and government. Although firms often cite low consumer demand as a barrier to circular offerings (Kirchherr et al., 2018), they also play a key role in shaping preferences and habits. Consumers are more likely to adopt circular behaviours when businesses make them easy, reliable, and attractive. Examples such as IKEA's buy-back programme and Patagonia's Worn Wear initiative show how companies can normalise reuse and repair as part of their business model. IKEA, which is one of the cases presented later in this white paper, illustrates how circular design and customer incentives can reinforce each other in practice.

Circular strategies must also be examined through a justice lens (Kirchherr, 2021; Mies & Gold, 2021). Some models may inadvertently shift costs downstream, such as requiring consumers to disassemble or return products, or offering benefits primarily to those who can afford higher upfront costs. Ensuring equitable access to circular options, especially in lower-income groups or informal sectors, is critical to achieving a just and inclusive transition.

Ultimately, achieving circularity at scale requires more than innovative products and policies. It demands a parallel shift in behaviours, both inside organisations and across society. As more companies align operations with circular principles, they influence not only internal decision-making but also broader cultural norms around consumption and value creation (Jaeger-Erben et al., 2021; Niessen & Bocken, 2021; Bocken et al., 2022). A truly resilient circular economy also considers equity, ensuring access to benefits across regions, workforce groups, and income levels. EU policies increasingly reflect this through calls for inclusive innovation and socially just transitions (Kirchherr, et al., 2018; Kirchherr, 2021; Mies & Gold, 2021).

1.2. TOWARDS APPLICATION: A SHARED FOUNDATION

In combination, these technical, financial, legal, and behavioural levers form the scaffolding for a transformation that is no longer optional. As material scarcity, ecological collapse, and regulatory pressure intensify, businesses that fail to engage with circular strategies risk falling behind. At the same time, those that act now are better positioned to lead in a future defined by resilience, regeneration, and long-term value. This is not just a theoretical exercise. The foundational perspectives outlined above are already shaping competitive advantage and influencing compliance across sectors. Circularity questions deeply embedded assumptions about ownership, growth, and waste, and offers an alternative model based on regeneration and collaboration. While each perspective is distinct, they are deeply interconnected. In unison, they provide the mindset, vocabulary, and tools needed to rethink how value is created and preserved through strategies that align economic activity with environmental thresholds and societal priorities.

At the same time, circular strategies often involve trade-offs. Designing for extreme durability may increase production costs and limit affordability. Upcycling can increase a product's value by repurposing waste into higher-quality applications, but it may also involve combining materials or altering their composition in ways that make future recycling more difficult or impossible. Optimising for one circular outcome can constrain another, making it essential to assess circular strategies in context and balance competing priorities across environmental, economic, and social dimensions.

Circularity is not a one-size-fits-all model. It demands context-specific strategies rooted in a shared systems perspective. Anchored by

major policy drivers such as the CEAP and the Clean Industrial Deal (European Commission, 2020a; European Commission, 2025), they are already influencing how industries design, invest, and redefine value. This reinforces the fact that circularity is not a passing trend or a narrow environmental agenda: it represents a convergence of rigorous and evolving ideas aimed at transforming the structure and logic of industrial systems. Recent scholarship has underscored the need for holistic metrics that incorporate environmental, social, and economic dimensions when evaluating circular strategies (Saidani et al., 2019; Kristensen & Mosgaard, 2020). Without this systems view, initiatives risk falling short or triggering rebound effects, where efficiency gains are offset by increased consumption or production elsewhere (Zink & Geyer, 2017).

Scholars and practitioners have also cautioned against narrow interpretations of circularity that prioritise single metrics, such as recycling rates, without addressing wider system impacts (Korhonen et al., 2018). In response, contemporary circular economy thinking increasingly integrates scientific foundations from industrial ecology, design innovation from regenerative approaches, evolving business models such as product-as-a-service and sharing platforms, and the organisational and behavioural shifts needed to support change (Jaeger-Erben et al., 2021; Niessen & Bocken, 2021). In combination, they offer a multi-dimensional lens for assessing and scaling circular strategies in real-world contexts.

In the next section, we examine how this conceptual foundation is taking shape across Europe, where enabling policies and innovative business practices are converging to accelerate circularity.

1.3. EUROPE'S CIRCULAR TURN: FROM POLICY SIGNALS TO MARKET SHIFTS

Europe's circular economy journey has evolved from scattered pilots to an integrated policy and business agenda. As noted earlier, circularity, anchored in the European Green Deal and operationalised through mechanisms such as the Circular Economy Action Plan (CEAP) and the Ecodesign for Sustainable Products Regulation (ESPR), is increasingly embedded in Europe's approach to production, consumption, and resource management (European Commission, 2020a; 2024). The ESPR establishes requirements for durability, reparability, and recyclability across multiple sectors, including electronics, textiles, packaging, and construction (European Commission, 2024).

The Clean Industrial Deal signals a growing consensus that circular strategies are vital not only for environmental goals but also for industrial resilience and competitiveness. It targets circular material use of 24% by 2030, up from 11% today, raising ambition while boosting material security and reducing external dependencies. Member States are implementing these policies through national roadmaps, public procurement criteria, and fiscal incentives, such as France's Anti-Waste Law, creating a consistent regulatory baseline to support the scaling of circular practices.

For businesses, this evolving regulatory landscape demands integrating circular strategies to maintain compliance, reduce risks, and secure market access. Anticipating extended producer responsibility, minimum recycled content, and take-back obligations can prevent disruptions and yield first-mover advantages. Concurrently, rising pressure from customers and supply chain partners is shifting procurement to favour recyclability, reparability, and circular sourcing. Transparency in circular practices also enhances brand loyalty and reputation (Kristensen & Mosgaard, 2020).

Circularity delivers tangible economic and operational benefits. Design and business models focused on reuse, modularity, and remanufacturing reduce exposure to raw material volatility, input

inflation, and regulatory uncertainty. Such approaches offer cost savings and operational stability, particularly in material-intensive sectors like manufacturing, construction, and consumer goods (Bocken et al., 2016). Benefits extend to reduced downtime and waste management costs, which are increasingly part of long-term planning (Tukker, 2015). Moreover, circular business models based on access, leasing, take-back, and repair services extend product lifecycles and attract environmentally conscious consumers (Stahel, 2010; Sarasini et al., 2024).

Although challenges remain, Europe's clear policy and market shifts demonstrate growing adoption of circular models that address material constraints, market changes, and regulatory evolution. This white paper's case studies showcase how organisations are applying these ideas, highlighting lessons and outcomes for Europe's circular economy transition.

Although this white paper focuses primarily on the European context, given the policy momentum under the CEAP, ESPR, and the Clean Industrial Deal, the foundational principles and business strategies explored here are increasingly relevant beyond Europe. Countries including Japan, South Korea, and Brazil have launched aligned national circular economy strategies promoting collaboration, eco-design, innovation, and waste reduction. In Africa, the Africa Circular Economy Alliance fosters circular innovation in sectors such as agriculture, construction, and textiles. These global efforts align with international standards like ISO 59040:2025, which introduces a Product Circularity Data Sheet for consistent application across markets. Despite diverse regulatory and institutional contexts, initiatives across the world reflect shared recognition of circularity as a path to resilience, stewardship, and economic renewal.

Circularity is an increasingly global transformation that crosses geographic, economic, and sectoral boundaries, shaped by varied contexts but guided by increasingly shared goals.

2 CIRCULARITY IN PRACTICE

The following case studies demonstrate how circular economy principles are being applied across sectors. Each case highlights a different entry point and strategic focus, from material innovation and modular design to governance reform and market influence. These companies vary in size, industry, and maturity level, but all offer insight into how circular ambition can be translated into concrete actions. Together, they provide a multi-dimensional view of what it takes to turn theory into lasting change.

2.1. ABN AMRO: FINANCIAL MECHANISMS FOR CIRCULAR TRANSFORMATION

ABN AMRO is a major Dutch bank integrating circular economy principles into the structure and practice of banking, showing how finance can structurally support the mainstream adoption of circular economy principles. Beginning with early experiments in its innovation centre (Circl) in 2010, the bank is progressively embedding circularity into client engagement, sustainability finance taxonomies and risk management approach in the relevant sectors. Key to their impact is a close collaboration with other major Dutch banks and knowledge-sharing beyond the Netherlands and the bank's own sector limits. ABN AMRO is on an ongoing learning-by-doing journey.

Rethinking Risk: A Circular Lending Logic

ABN AMRO is adapting its **client ESG performance assessment logic to reflect the circular performance of borrowers.**

Resource use and circular economy considerations are part of ABN AMRO's sustainability risk standard approach. It is integrated as one of the generic topics risks and impact assessments. Lack of standards and data are a challenge.



Client level assessments as part of the regular risk dialogue evaluate measures taken towards circular economy and reducing virgin material use, focusing on design and recycling.

Assessments include waste hierarchy, the 9 R-strategies, sensitivity to resource depletion,

and the impact of resource use in operations and the value chain. These assessments influence risk scoring and lending decisions, and ABN AMRO continuously improves them to be more sector specific and data-driven.

This approach enables the bank to proactively guide clients toward circular strategies rather than simply react to compliance demands. Niina Pussinen, Circular Economy Lead at ABN AMRO, notes that regular assessments facilitate ongoing strategic dialogue with clients. They help the bank emphasise the importance of circular performance while creating opportunities for continuous learning and improvement.

ABN AMRO excludes certain activities from lending and banking services based on resource use criteria. This means that ABN AMRO does not knowingly offer financial products or services for activities listed in their Exclusion List. For example, in transportation, exclusions apply to breaches of the Hong Kong Ship Recycling Convention, which sets standards for safe and environmentally sound ship recycling. ABN AMRO engages with financed clients who do not meet their standards to enhance ESG performance, including circular performance. Their engagement conditions incorporate circular economy or resource use elements, and thematic engagements are possible, such as on ship recycling in 2024. Additionally, large clients are assessed for environmental criteria application to service providers, suppliers, and contractors.

Clients in agriculture, forestry, manufacturing, and diamond sectors are assessed on responsible sourcing, using clear ESG criteria and certification schemes.

Central for further integration of circular aspects into the risk approach is the Circular Risk Scorecard (CRS), developed by the Circular Finance working group of banks (*de Kopgroep Financieren van de Circulaire Economie*) and the Dutch government. Linear risks and circular opportunities must be explicitly included in financing and investment decisions to achieve a resilient economy. Circular risk assessments require future-oriented models and certainty in cash flows, stability, and chain contracts.

The Risk project group, consisting of experts from banks and Invest-NL, is developing a method to finance circular entrepreneurs through a 'circular lens.' They have created a generic, open-source tool (CRS) to assess circular business risks realistically. The CRS provides a way to evaluate long-term business risks and collect anonymized data on circular and non-circular business risks. This data helps link circular risks and opportunities

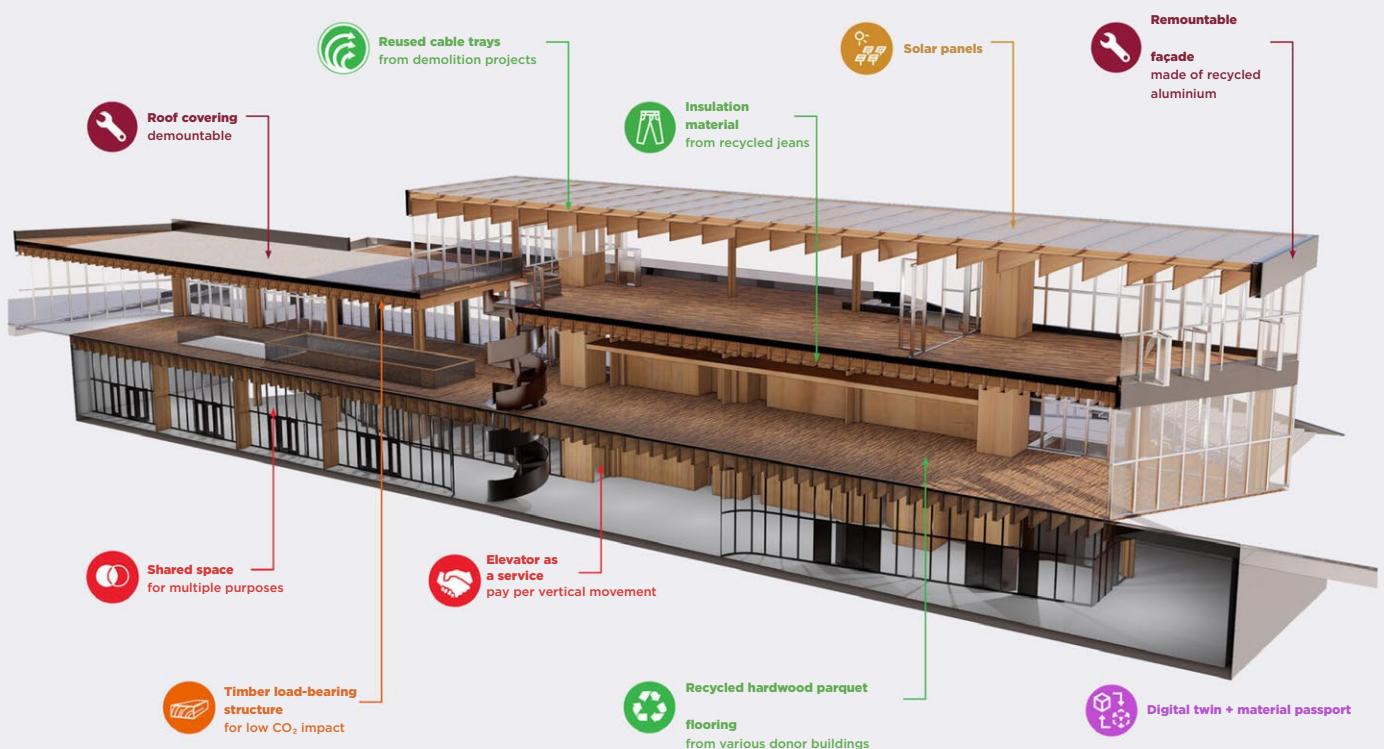
to business continuity, contributing to the transition towards a circular financing standard by 2030.

Rethinking Financial Instruments and Beyond



Developing transition-oriented finance instruments that promote circular transactions is part of the approach.

ABN AMRO has a Product-as-a-Service desk that supports clients in financing (based on lease or project finance) and provides specific expertise and support to business clients starting or expanding their use of PaaS as a circular revenue model. The ABN AMRO Sustainable Impact Fund (SIF) is one of the largest private impact funds in the Netherlands. With a commitment of EUR 500 million, funded and managed exclusively by ABN AMRO, SIF invests through direct equity investments focusing on decarbonisation in the energy sector, the built environment and consumer value chains. This includes circular solutions that address embedded carbon. For example, SIF recently acquired a stake in two scale-ups in circular and resource efficient concrete.



Tikkie, ABN AMRO's payment request app, also plays a role in the Dutch scheme for recycling cans and bottles. Many return vending machines for cans and bottles across the Netherlands have now integrated *Tikkie*, making it easier for consumers to recycle. In 2024, *Tikkie* facilitated a total of nearly 3 million recycling transactions, a tenfold increase compared to 2023.

Beyond finance, ABN AMRO has been pioneering in circular procurement and construction with, for example, the award winning innovative Circl building initiative that also hosted ABN AMRO's knowledge platform for circularity. Since 2018, ABN AMRO is also an active partner of the annual Dutch national Circular Economy Week.

From Internal Taxonomies to Systemic Alignment

Recognising the limitations of standard ESG screening, together with two other major Dutch banks and knowledge institutes, ABN AMRO developed the first taxonomy to assess circularity before the EC Categorisation System or EU Taxonomy were formally introduced. This framework provided a practical tool for evaluating circular business models and start tracking them under a specific Circular Finance KPI. Rather than waiting for regulatory signposts, the bank shares its insights with other banks, policy makers and businesses. This proactive knowledge-sharing demonstrates how financial players can not only follow regulation but help shape it.



This internal work is complemented by active participation in **cross-sectoral collaborative initiatives**, such as the Dutch *Kopgroep Financieren van de Circulaire Economie*, a collective platform for knowledge exchange, methodology development, and alignment between public and private actors. These partnerships reflect a broader philosophy of industrial ecology, where finance, business, government, and civil society **jointly shape the enabling conditions for systemic change**.

Establishing shared standards and methodologies is essential to embedding circular logic into financial systems and scaling it across industries and regions.

From Enabler to Market Shaper



ABN AMRO's approach shows that finance is not only an enabler of circularity but also a **structural force in shaping market behaviour**. Through lending conditions, due diligence, and investments banks can actively incentivise clients to rethink product design, asset ownership models, and strategies for value recovery. Linking capital access to circular performance indicators sends clear behavioural signals, rewarding long-term thinking while disincentivising linear inefficiencies.

This influence extends beyond individual deals. The bank's integration of circular KPIs into credit assessments, combined with targeted client engagement and knowledge-sharing, can contribute to **broader mindset shifts** across its portfolios and client base. These practices represent institutional behavioural change, embedding new norms into financial infrastructure and accelerating transformation beyond regulatory or reputational pressures.

ABN AMRO illustrates how financial institutions can move beyond compliance to market leadership, aligning risk, reward, responsibility, and **long-term value within planetary boundaries**. It also signals a deeper transformation: when capital flows reinforce circular logic, finance becomes a lever not just to finance economic activity, but to regenerate social and ecological systems. ABN AMRO's case underscores that rethinking finance is not a peripheral task: it is central to enabling a regenerative and future-fit economy.

2.2. BARCO: FROM COMPLIANCE TO CIRCULAR INTEGRATION IN HIGH-TECH SYSTEMS

Barco, a global player in digital projection and imaging technology, offers an example of how circularity can evolve from external compliance pressure into an integrated business strategy. Initial demands from clients and investors for sustainability disclosures catalysed a broader transition, from tracking carbon

emissions to embedding circular principles across the product lifecycle. Today, Barco applies circular thinking in product design, service models, performance metrics, and governance structures – illustrating how lifecycle thinking and systems integration can operationalise sustainability across a high-tech business.

Circular economy & waste (E5)

1. Impacts, risks and opportunities

Impacts, risks and opportunities

Definition material topic	Sub-topic	Type	IRO and description	Actual/Potential	Time horizon	Own operations/value chain (upstream/downstream)	Interdependencies between impacts and risks/opportunities
a) Addressing the end-of-life of our own products and services by capturing the remaining value via circular business models. Enabling circularity via product life extension, sharing/collaboration models, predictive maintenance, upgrades, product-as-a-service, etc. combined with a circular R-strategy (recycling, remanufacturing, refurbishment, repair, etc.). b) Taking actions to prevent and reduce the waste from own operations.	Resource inflows	NI	IRO 9: In order to manufacture our products, virgin materials are being exploited in our supply chain The exploitation of virgin materials to manufacture products leads to a decreased availability of natural resources.	A	ST	U	IRO 9 – IRO 10, IRO 9 – IRO 8
		R	IRO 10: Decreasing availability of materials and components Increasing scarcity of certain materials or components (e.g. precious/rare earth metals) might have an impact on business operations. This can lead to value chain disruption, price increases, temporary shutdowns, or the inability to manufacture certain products.	P	MT, LT	U	IRO 10 – IRO 8
	Resource outflows related to our products	NI	IRO 11: Waste generation from our products Once our products and services are discarded, they increase the amount of e-waste.	A	ST, MT, LT	D	IRO 11 – IRO 10
		O	IRO 12: Development and/or expansion of circular products and services The transition towards a more circular economy is an opportunity to retain more value from our products by extending their lifetime and increasing material efficiency. This might create business opportunities in new markets.	P	ST, MT, LT	D	IRO 12 – IRO 11, IRO 12 – IRO 10, IRO 12 – IRO 2
	Resource outflows related to our operations	NI	IRO 13: Waste generation from our operations and services Our operations (including services) increase the amount of company waste streams.	A	ST, MT, LT	OO	

Policies

Ecodesign program: lower the environmental footprint of our products at every stage of their life cycle.

Environment, Health & Safety² pledge: commitment to respect, preserve and improve the environment whenever possible.

Targets and metrics

- We aim to increase the revenues from circular products each year (versus 2024 baseline) (waste from our products)
- By 2027, 85% of our company waste will be recycled (waste from our operations)
- By 2027, zero waste will go to landfill (waste from our operations)
- Additional metrics not covered by targets:
 - » % of revenues in countries with Barco return and recycling programs
 - » ESRS E5 metrics



Circular Design, Lifecycle Integration, and Strategic Governance



Barco's circular strategy is anchored in its eco-design programme, launched over 7 years ago to embed sustainability directly into product development. Central to this programme is a proprietary **Ecoscore methodology**, which evaluates new products based on energy performance, hazardous substances, packaging and logistics, and end-of-life readiness. The Ecoscore directly informs design decisions and is tied to a KPI tracking the percentage of turnover from eco-labelled products. With a target of 90% by 2027, Barco links circular design explicitly to financial performance, increasingly embedding it in cross-functional product and service development.

Barco integrates lifecycle considerations – such as energy use, ease of disassembly, and material health – into product design. The Ecoscore functions as both design guide and performance feedback loop, reinforcing environmental priorities throughout development. This approach aligns with the Circular Value Index (CVI), which emphasises

durability, adaptability, and recoverability as pathways to value preservation. Modular designs retain value by allowing undamaged disassembly, while serviceability lowers reuse costs. In parallel, software development helps avoid obsolescence and extend product life, making digital functionality a key enabler of circularity.

These design choices deliver measurable benefits during the use phase, where electronics typically generate the highest environmental impact. Energy-intensive products like projectors and medical displays are engineered to meet or exceed efficiency standards. This reduces lifecycle emissions and client operating costs, illustrating how upstream design supports downstream value.

Circularity at Barco extends beyond design: it is embedded in the **New Product Introduction** (NPI) process and linked to R&D budgets, profit planning, and business unit strategies. This integration turns sustainability from a standalone objective into a structured operational commitment, aligning design intent with long-term strategic performance.

Supporting the Customer Beyond the Sale

Circularity at Barco extends to the post-sales relationship. Through offerings such as repair and maintenance services, take-back and refurbishment programmes, and end-of-life management, the company aims to unburden the client while recovering material and functional value. This reduces environmental impact on the client side and contributes to Barco's long-term service revenue.



Pilot projects, such as projector refurbishment in immersive entertainment, have proven technically and commercially viable. In this sense, Barco is exploring how to not just sell products but to **manage value over time**.

This fosters loyalty and reduces the total cost of ownership for its clients. These offerings reflect product-service systems and the performance economy, where manufacturers retain responsibility for outcomes and resource recovery, shifting value creation from one-time transactions to continuous loops.

To bolster these efforts, Barco is investing in **lifecycle assessment (LCA)** capabilities to track actual impact and **support data-driven design and business model decisions**. This supports internal decision-making and ensures alignment with emerging regulatory requirements including the EU's CSRD, the Clean Industrial Deal, and digital product passport initiatives.

Resilience in a Resource-Constrained World



The rationale for Barco's circular approach is not only environmental but also strategic. The supply of critical raw materials, including rare earth elements and lithium, is increasingly volatile due to geopolitical tensions and supply chain disruptions. As the EU remains heavily import-dependent, the **reuse and recovery of components is becoming essential for long-term resilience**.

Circular design helps mitigate these risks. Products built for serviceability and refurbishment are better positioned to adapt to supply or regulatory disruptions. Software contributes by enabling energy-efficient operation, smart maintenance, and product life extension. This reflects systems thinking, where **interdependencies between regulation, material flows, and product design shape outcomes**. Barco's strategy also resonates with industrial ecology principles, closing resource loops and reducing dependence on virgin inputs.

Barco's case illustrates how digital technology manufacturers can move beyond pilot projects to embed circularity into core business strategy, through design, governance, and extended customer engagement. Dries Vanneste, who leads Barco's sustainability integration, captures the ethos clearly:



Circularity must be operational, strategic, and measurable, and most importantly, it must trigger real action.

Dries Vanneste — Barco

2.3. BEAULIEU INTERNATIONAL GROUP: FROM ROADMAP TO CIRCULAR PRODUCT DEVELOPMENT

Beaulieu International Group (B.I.G.), a global producer, processor, and distributor of polymer-based solutions, handles over one million tonnes of plastics annually. This scale makes its circular ambitions particularly consequential. Through its long-term Route 2030 strategy, B.I.G. is embedding circularity into operations while maintaining profitability, managing risk, and strengthening material resilience.

From Circular Targets to Product Portfolios

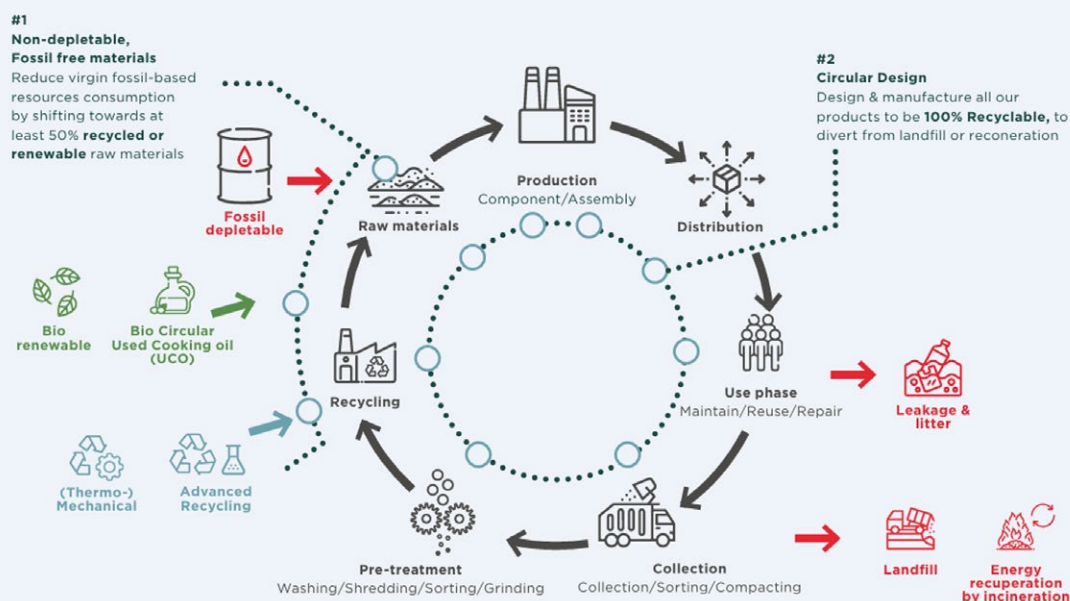


At the core of Route 2030 are two headline targets. The first is to **reduce reliance on fossil-based, depletable resources** by ensuring that at least 50% of raw materials used in production come from recycled or renewable sources by 2030.

This objective reflects core principles of industrial ecology, where reducing

dependence on virgin inputs is central to lowering environmental impact and increasing resilience. In 2024, B.I.G. expanded the lower-impact products ranges to operationalise this commitment. This included Twilight, a vinyl flooring solution made with 100% bio-circular attributed PVC, and Verdite, an easy-to-recycle artificial turf, in addition to existing Ego yarns and corrugated sheet ranges.

The second target is to **offer only 100% recyclable flooring solutions by 2030**. All finished flooring products, especially those developed in-house, must be **fully recyclable within the existing recycling infrastructure**. This reflects a performance economy mindset, where systems are designed not just for theoretical recyclability but for integration with real-world material loops. B.I.G.'s goal is to close material cycles at scale, without relying on niche or inaccessible technologies.





This pragmatic logic is embodied in the REWIND project, designed as a single-polymer solution for the high-turnover event industry. B.I.G. supports clients globally in identifying local logistics and recycling partners, ensuring materials are recovered rather than incinerated or landfilled. This illustrates systems thinking in practice, where recovery is designed into product, distribution, and post-use processes.

To extend circularity beyond isolated products, B.I.G. is developing **take-back programmes**, such as Relive and Circul8, designed to facilitate post-use collection and reintegration of materials. These initiatives embody product-as-resource thinking, which underpins regenerative and cradle-to-cradle design approaches.

Measuring What Matters: Integrating Circularity into Business KPIs

Circularity at B.I.G. is integrated into performance management. Alongside conventional KPIs such as ROI and production volume, business units report on circular metrics including material take-back volumes and avoided CO₂ emissions. This dual lens reinforces the role of circularity in both environmental and financial performance.



In 2024, **circular materials, products, and services were confirmed as material topics in B.I.G.'s double materiality assessment**, an essential step toward CSRD readiness. While mandatory reporting begins in 2028, the company has already aligned with the European Sustainability Reporting Standards to improve transparency and anticipate stakeholder expectations. This reflects strategic foresight and regulatory preparedness. Life Cycle Assessments (LCAs) further support circular decision-making. With 80% conducted in-house, LCAs inform product design and give clients clear insights into environmental impacts across the lifecycle. These assessments support both sustainable innovation and objective tracking of circular outcomes.

Strategic investments, from advanced recycling technologies to redesign initiatives, are assessed for long-term environmental and economic value. According to Clara Carelli, Group Sustainability Director, **executive leadership has been pivotal in embedding these criteria into core decision-making.**

This signals a shift from siloed sustainability efforts to a broader organisational commitment, treating circularity as both a business lever and a performance imperative.

Enabling System Change: Building Partnerships for Scalable Impact

To realise its Route 2030 vision, B.I.G. has implemented a strategic roadmap with tailored milestones for each division. These decentralised targets focus on process optimisation, enabling technologies, and scalable innovation. This approach leverages systems thinking by allowing each unit to adapt circular principles to its operational context, while contributing to a shared organisational direction.



External **collaboration plays a critical role in making this possible.** B.I.G. engages in global networks such as the Ellen MacArthur Foundation and builds regional partnerships with recyclers to improve local sorting and recovery infrastructure. These partnerships are not only essential for achieving recyclability targets but also for ensuring consistent access to quality secondary materials in a volatile supply environment.

This ecosystem approach links product design, supply chain resilience, and financial planning. By embedding circularity into both internal operations and external partnerships, B.I.G. demonstrates how global manufacturers can turn circular principles into actionable strategies. In doing so, it positions circularity not merely as loop closure but as an opener of pathways towards resilience, growth, and value creation.

2.4. IKEA: OPERATIONALISING CIRCULAR RETAIL AT SCALE

IKEA is the world's largest home furnishing retailer, recognised for its affordable, standardised design and global reach. IKEA shows how circularity can scale in high-volume retail by aligning product returns, customer incentives, and governance with clear business logic. Rather than treating circularity as an add-on, IKEA integrates it into core operations, focusing on **preserving product value, managing risk, and sustaining customer engagement**. This reflects systems thinking, the performance economy, and value preservation, illustrating how circular strategies can scale when embedded from the outset.



Value-Preserving Reuse as a Circular Retail Strategy

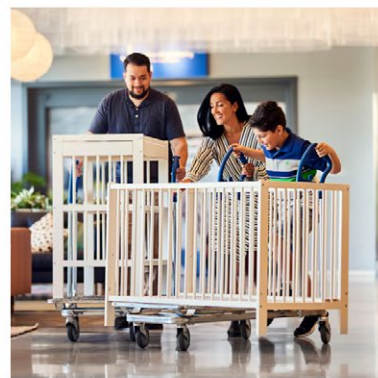
IKEA combines in-store take-back with a digital resale platform to extend product life and maintain resale quality. IKEA Pre-owned, already active in several countries and launching in Belgium in 2025, allows customers to buy and sell used items online. This complements services like the Buy-Back Service and *Tweedekanshoek* (Second Chance Corner), where returned or refurbished products are resold at a discount. Returned items must be recognisably IKEA, functional, clean, and free of glass or textiles. An online valuation tool pre-screens resale potential. Customers handle disassembly and return, receiving store credit in exchange. This preserves value, lowers costs, and reinforces loyalty.



1. Calculate the value of your furniture.



2. Receive your estimate.



3. Bring the furniture to us.



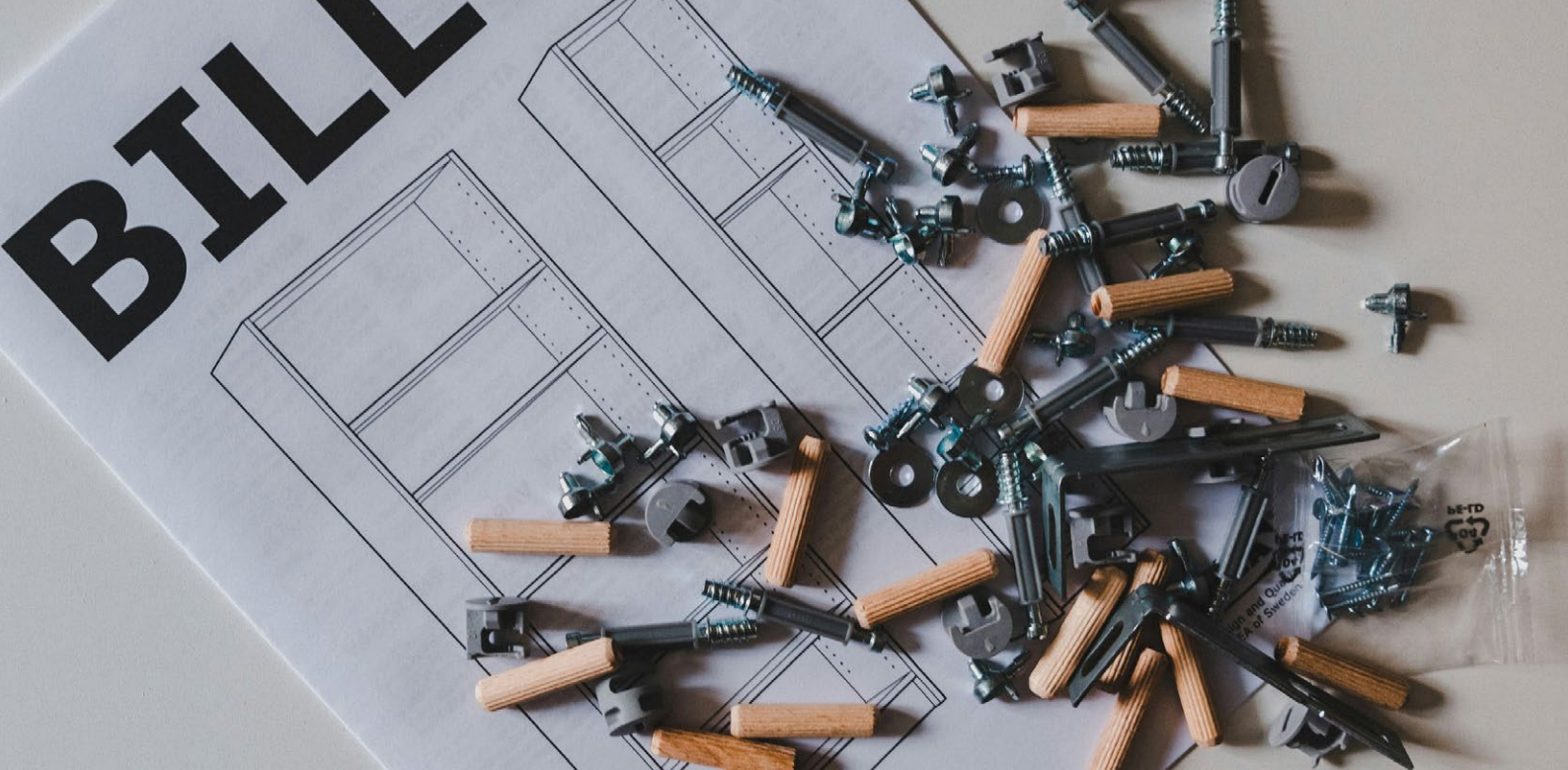
4. Assessment and final price.



5. Receive your IKEA purchase voucher.



6. Give your furniture a new life.



In 2023, Belgian customers returned about 12,300 furniture pieces through the Buy-Back Service, a 72% increase from the previous year. Already in the current year, 11,600 items have been brought back. These programmes show how companies can shape consumer habits by embedding circularity into everyday retail. By **making reuse simple, trustworthy, and rewarding, IKEA shifts consumer norms toward circular consumption.** As discussed earlier in this white paper shifting behaviour at scale requires businesses to not only respond to demand but actively shape it.

IKEA's reuse system also aligns closely with the Circular Value Index (CVI):

- **Residual value** is preserved through selective screening
- **Reuse cost** is minimised by shifting logistics to customers
- **Market risk** is controlled by focusing on high-performing second-hand categories

IKEA's approach demonstrates that circular retail systems can scale when value preservation, customer engagement, and operational efficiency are aligned by design.

Data-Driven Circularity: Impact Over Appearance

IKEA's focus on value extends to how circular initiatives are assessed. Decisions are based on measurable outcomes rather than symbolic gestures. For instance, despite achieving a 95% waste diversion rate, IKEA Belgium re-evaluated a mussel shell recycling project after lifecycle analysis showed the CO₂ impact outweighed the benefits. This reflects an adaptive mindset rooted in systems thinking and lifecycle logic.



According to Laura De Boeck, Sustainability Leader at Ingka Group (IKEA's parent company), circular initiatives are only pursued when backed by a sound business case. In short, **circularity must be evaluated not just for intent, but for actual impact.** Factors such as payback periods, brand value, and non-financial KPIs guide decisions. This reflects performance economy thinking, where environmental and financial outcomes are evaluated together. It also illustrates that circular design extends beyond products to business models and decision frameworks.



Embedding Circularity Across Governance and Strategy



IKEA's internal governance structure reinforces its circular ambitions by embedding sustainability across leadership and day-to-day operations. The CEO also serves as Chief Sustainability Officer, supported by targeted training and measurable environmental KPIs.

ESG goals are integrated into annual employee evaluations, helping to align everyday decisions with long-term priorities. Rather than isolating sustainability within a single department, IKEA distributes responsibility across the organisation, fostering shared accountability by **embedding circular thinking into roles, reviews, and leadership**. This approach reflects the behavioural dimensions of circular transformation discussed earlier. Transitions often stall when roles are unclear or short-term thinking dominates. IKEA's integration model helps shift internal mindsets and institutional habits, both of which are essential for circularity at scale.



Externally, IKEA takes a proactive stance toward evolving regulation. The company welcomes new sustainability legislation, such as the EU's circular economy targets, viewing them not as constraints but as opportunities to reinforce its own direction. Rather than adapting reactively to policy shifts, IKEA uses legislation as a reference point for strategic alignment and internal acceleration.

Laura De Boeck puts it simply:



Our vision is to create a better everyday life for many people, and we will execute on this, no matter the geopolitical fluctuations.

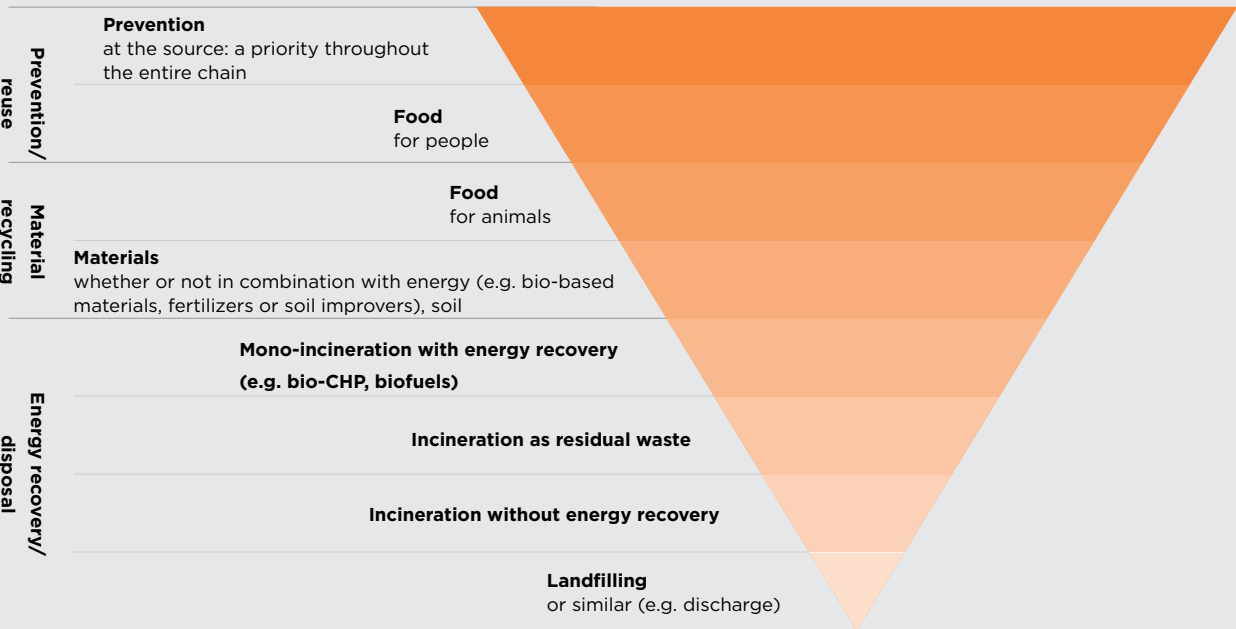
This perspective goes beyond compliance. It signals a structural commitment to circularity even when external conditions are volatile. IKEA's example shows that **long-term strategic clarity and operational stability** can be built not through reactive adaptation but through **governance that embeds sustainability** at its core.

2.5. IMPETUS: BUILDING CIRCULAR BUSINESS FROM THE SIDESTREAM UP

Unlike many companies that retrofit sustainability into linear operations, Impetus was founded from the ground up with circularity as a strategic core. The company focuses on industrial **sidestream valorisation**, particularly in the agri-food sector, developing circular business models that are technically feasible, economically scalable, and deeply aligned with clients' long-term goals. Their work goes beyond waste reduction. By systematically converting residual flows into new income streams, Impetus positions circularity as a tool for **business resilience**, **diversification**, and **future-proof growth**.

Circularity as a Service: Data-Driven, Risk-Aware, Client-Centric

 Impetus applies a staged, modular approach they call 'circularity as a service'. The process begins with detailed mapping of a company's sidestreams. Following the 'cascade for circular management of food loss', the first priority is to eliminate sidestreams. Where elimination is not feasible, the team screens for possible reuse and valorisation routes.



Cascade for the circular management of food loss and food waste streams from producer to consumer.
Source: Vlaamse Overheid, 2021, Actieplan voedselverlies en biomassa(rest)stromen circulair 2021-2025.

This business-first logic is central to Impetus's approach. A circular solution must be financially attractive before it can scale. Each opportunity is assessed through a **multi-factor go/no-go framework**, evaluating:

- Strength of the business case
- Circular impact (e.g. avoided carbon emissions)
- Fit with company vision and sectoral megatrends
- Future-proofing and adaptability
- Technological maturity
- Market and price risk
- Legal complexity (e.g., food safety, EFSA approval)
- Environmental impact and permitting feasibility

By combining technical insight with economic realism, Impetus ensures that only viable, investable circular pathways move forward.

From Sidestream to Strategy: Building Value Step by Step

Launching a high-tech circular solution from zero is inherently risky. Impetus mitigates this by following a **phased development model**, gradually building toward the most profitable. Instead of targeting high-barrier markets (such as human food) from the outset, they often begin with lower-risk, mid-value products such as animal feed or pet food. This generates early revenue, reduces capital risk, and helps partners build operational experience. Over time, insights gained in these first phases are leveraged to pursue more advanced, higher-value upcycling routes. This approach ultimately unlocks new market potential while keeping investment decisions grounded in real-world learnings.

Their *RE:SOURCE* project with potato processor Agristo exemplifies this. The end goal is to produce plant-based egg white alternatives from potato proteins. However, the current commercial phase targets pet food, creating income while refining processing techniques and de-risking future scale-up.

The long-term potential is shaped through a combination of technical progression and financial pragmatism, turning sidestreams into strategic resources.

Industrial Symbiosis and Cross-Sector Collaboration

One of Impetus's key strengths lies in its ability to catalyse industrial symbiosis by linking one company's residual streams with another's raw material needs. By treating waste as a systemic opportunity rather than a problem to be disposed of, Impetus enables cross-sector partnerships that benefit all parties involved.



Interestingly, these collaborations often occur where competition is least intense. Unlike core products, **waste is rarely a competitive differentiator**. This makes it easier for companies, even competitors, to co-develop recovery solutions. This opens the door to **ecosystem-level innovation**, enabling clients to improve both sustainability and profitability through shared infrastructure, logistics, or processing.

A New Circular Logic for Business Diversification

Through its practical, opportunity-driven approach, Impetus helps companies not only valorise waste but **diversify their revenue streams**, reduce exposure to regulatory risks, and gain competitive advantage in increasingly resource-constrained markets. Their work illustrates that circularity, when designed for business value, can act as both a **hedge against disruption** and a lever for innovation.

Where traditional sustainability approaches often focus on compliance or cost reduction, Impetus reframes circularity as a pathway to **growth, resilience, and strategic renewal**. In doing so, the company shows that the future of industrial circularity will belong not to those who minimise risk alone, but to those who structure and scale **circular value creation** from the ground up.

2.6. JUUNOO: CIRCULAR VALUE BY DESIGN IN THE BUILT ENVIRONMENT

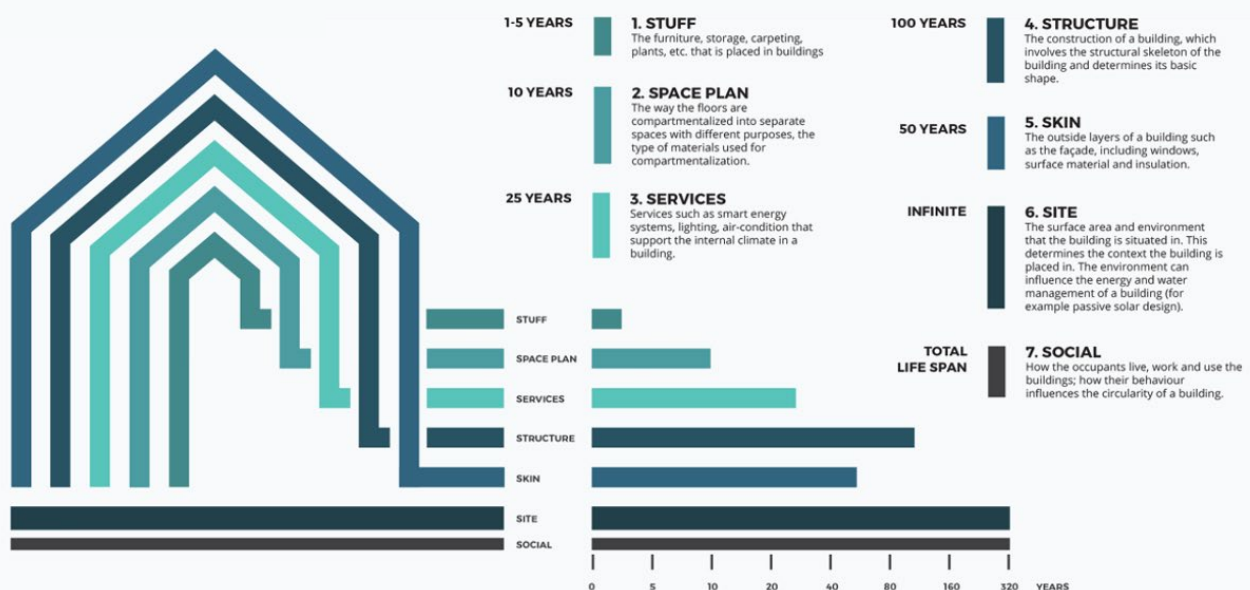
JUUNOO, a Belgian scale-up founded in 2017, redefines how interior walls are conceived, used, and reused. Instead of treating partitions as disposable construction elements, JUUNOO positions them as **durable, modular assets** with economic value across multiple life cycles. By aligning product design, take-back logistics, and financing models, JUUNOO offers a compelling example of how **value preservation** becomes the foundation for scalable circular innovation in the building sector. Rather than retrofitting sustainability, JUUNOO embeds circularity from the outset. This translates into **operational performance, measurable residual value, and contractual clarity**. This approach reflects key principles from systems thinking and the performance economy, particularly the shift from one-time products to serviceable, financeable material assets.

Reuse by Design: Preserving Function and Value



JUUNOO's product strategy builds on the principle of **'keep the body, change the skin'**. The company's modular wall systems consist of **telescopic steel frames** that are easy to install, dismantle, and reconfigure, without compromising acoustic performance or aesthetic quality. Panels are attached using a **click system** and **hook-and-loop tape**, eliminating drilling, plastering, or paintwork. The result: fast installation, minimal damage, and maximum reuse potential.

This design approach is informed by Stewart Brand's 'Layers of a Building' framework, which emphasises the importance of separating elements with different life expectancies. By designing walls as an independent, easily removable layer, JUUNOO extends the useful life of both product and property. In practice, this means that walls no longer need to be demolished during renovations – they can be dismantled, taken back, refurbished, and used again.



Building model consisting of the building related layers based on the shearing layers.

Source: WBCSD (2020) based on S. Brand (1994). Shearing layers is a concept coined by architect Frank Duffy, which was later elaborated by Stewart Brand in his book, "How Buildings Learn: What Happens After They're Built"

A Circular Business Model with Financial Backbone



Beyond design, JUUNOO's business model is explicitly geared toward **closed-loop reuse**. The company offers a **buy-back guarantee**, promising to repurchase walls when clients no longer need them. This repurchase happens at a predictable rate, for example 30% of the listed price for its 'Solid Wall' modules. Clients are required to return materials clean, undamaged, and properly stacked. These take-back conditions significantly lower the cost of reuse for JUUNOO to reintroduce the material for a second use phase.

To reduce up-front costs and support scalability, JUUNOO introduced the **Material-as-a-Service Company (MASCO)** model. Through this structure, external capital pre-finances the material, and ownership of the wall system remains with the MASCO throughout its use period. This **de-couples product use from ownership**, while allowing the product's residual value to be financially leveraged. Clients benefit from a lower net investment, while JUUNOO retains the ability to recover, refurbish, and redeploy its walls, maximising both environmental and economic return.



Legal due diligence plays a key role in enabling this model. JUUNOO addresses legal risks – including **risk of incorporation, assignment of receivables, and debt transfer mechanisms** – through carefully structured sales contracts. A dedicated 'circular clause' ensures that ownership, condition requirements, and return logistics are clearly defined. This safeguards both value recovery and legal clarity, strengthening the system's resilience and scalability.

Circular Value Index: From Theory to Practice

JUUNOO's approach scores highly when evaluated through the **Circular Value Index (CVI)**. The **residual value** of the product is preserved due to both technical quality and the application of reuse design strategies. Thanks to the modular design, returned products require minimal processing. The **cost of reuse** is low, especially when clients meet basic return conditions. Meanwhile, **market risk** is reduced by focusing on high-demand, standardised elements that retain their functionality and relevance over time.

In this way, JUUNOO's model demonstrates how the CVI is not only a theoretical framework, but also a practical decision tool. It informs product development, service logistics, pricing structures, and contractual obligations, thereby ensuring that each product remains a financially attractive asset rather than a liability.

From Product to Asset: Reframing Building Components

JUUNOO shows how value preservation can become the strategic driver of circularity in construction. By aligning product design with legal instruments, financial tools, and service logic, the company transforms interior walls from short-lived building components into circulating, investable material assets.

This redefinition reflects a broader shift in circular economy thinking: success lies not only in the reduction of waste, but in the **intentional preservation of value** – technical, functional, and financial – across time. JUUNOO offers a blueprint for how circular construction can become scalable, profitable, and resilient by design.

2.7. KNAUF INSULATION: ALIGNING SYSTEMS THINKING WITH MARKET AND REGIONAL REALITIES

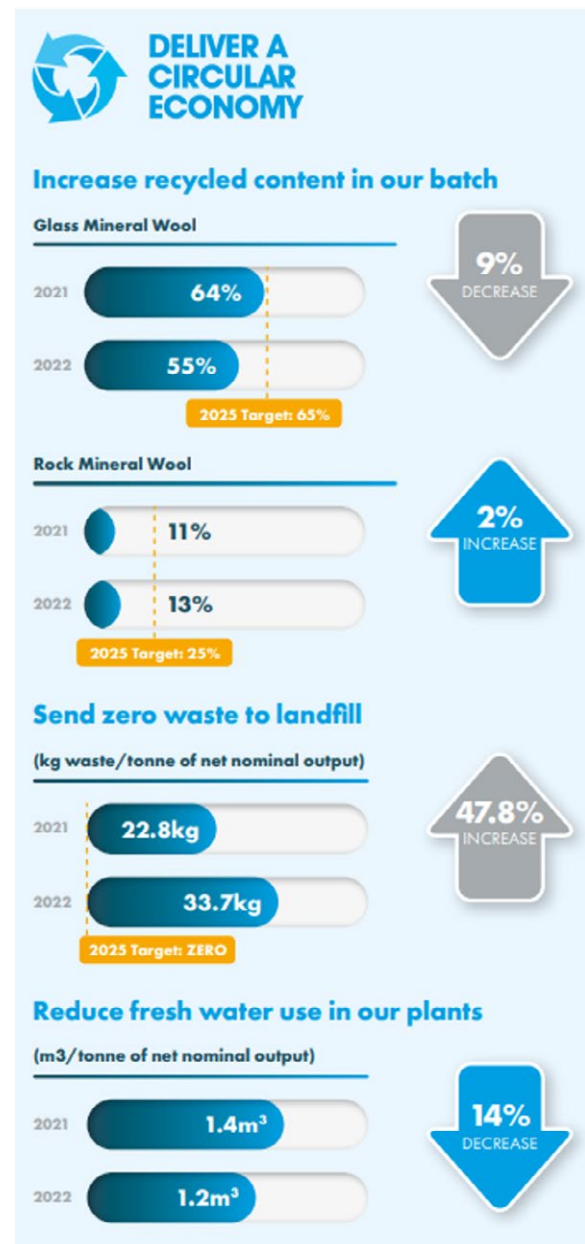
Knauf Insulation, part of the family-owned Knauf Group, produces mineral wool and wood-based insulation solutions for the construction sector, with a focus on **energy performance and resource efficiency**. The company's circularity strategy has steadily evolved since 2010, shifting from an initial focus on internal waste reduction and recycled content to a broader vision that extends beyond factory operations. Its **current approach prioritises high-quality recycling and the reintegration of end-of-life materials** into production, reflecting a deeper alignment between sustainability, operational resilience, and lifecycle-based value creation. In a sector increasingly challenged to reduce environmental impact and material waste, and where products often remain in use for decades, this long-term perspective supports meaningful circular design and recovery strategies.

Reuse in Theory, Recycling in Practice

Knauf Insulation focuses on high-quality recycling as a structured second-best to reuse. It has invested in dedicated recycling plants, including a flagship pilot in Belgium, to recover post-consumer mineral wool that would otherwise end up in landfills. Most of this waste is embedded in buildings and rarely retrieved at end-of-life. While the process is still energy-intensive and technically demanding in the pilot stage, Knauf Insulation views it as a strategic investment in future-proofing operations under tightening regulation and increasing material scarcity. This reflects an industrial ecology mindset, where waste becomes resource and value is recovered from overlooked flows.



From a Circular Value Index (CVI) perspective, reuse scores highest by preserving residual value and embedded energy. For shorter-term uses like partition walls, insulation can remain intact and uncontaminated, making reuse



Source: Knauf Insulation – Sustainability Journey: 2023 Highlights

theoretically simple and low-cost. Yet, in practice, certification barriers and a lack of infrastructure for collection, sorting, and reintegration prevent scalable implementation. Systems thinking highlights why ideal circular solutions often falter: without alignment across design, policy, and infrastructure, even the best theoretical options can prove unviable in context. For longer-term or exposed applications, the case for reuse weakens.

Decades of use degrade performance, while contamination from dust, adhesives, or debris increases recovery costs and reduces both residual value and reusability, making recycling the more scalable and realistic strategy. Instead of favouring closed-or open-loop solutions, Knauf Insulation assesses environmental benefits on a case-by-case basis. This approach reinforces the need for adaptive circularity, grounded in systems thinking, where viable pathways are shaped by the interdependencies between design, operations, policy, and recovery logistics.

Market Signals, Cultural Drivers, and Strategic Circularity

 Knauf Insulation's circular trajectory began not with regulation, but with shifting market expectations. In Western Europe, large project developers increasingly made material take-back a prerequisite for procurement, effectively pushing the company beyond baseline compliance. While Extended Producer Responsibility (EPR) frameworks are gaining traction across Europe, Knauf Insulation's early moves illustrate how business-to-business demand can act as a de facto regulatory force, accelerating circular action even in the absence of formal mandates.

This responsiveness is embedded in the company's strategic orientation. As a family-owned business, Knauf Insulation integrates long-term thinking into its core values, treating circularity not merely as a compliance exercise, but as both **risk mitigation and cultural imperative**, connecting it with employee engagement, talent retention, and broader social legitimacy. For Knauf, the circular transition is not just a technical challenge but a **strategic shift in how business is done**. Furthermore, anticipating rising landfill costs and an uncertain regulatory landscape, the company invests proactively in recovery infrastructure to protect future margins and operational resilience.

This approach reflects performance economy logic: the goal is not just to reduce waste, but to preserve value, anticipate constraints, and strengthen business continuity.



However, implementing circular solutions is far from uniform. The success of circular initiatives at Knauf Insulation often depends on **local economic signals**. In Belgium, for example, low landfill fees weaken incentives for recovery, while in Austria, stronger landfill pricing supports material recovery. In Australia, Knauf Insulation even co-invested in a bottle collection system to secure reliable feedstock for a Malaysian facility, highlighting how **resource strategies must align with regional infrastructure, regulation, and material flows**. From a systems thinking perspective, this reflects the **need for situational awareness and adaptive design**. Marc Bosmans, Group Sustainability Director at Knauf Insulation, emphasises the importance of staying connected and coordinated across regions – *“on the ground, with local teams, to make things happen”* – while adapting strategy to local contexts. Circularity is not one-size-fits-all: it emerges at the intersection of economic signals, stakeholder pressure, and geographical context.

Ultimately, Knauf Insulation's circular strategy is both principled and pragmatic. It aims to maximise recycled content but acknowledges that reaching this ambition depends on more than technical capability. Policy consistency, economic incentives, and cross-industry alignment all shape what is possible. The company's evolving model shows that circularity in building materials is neither linear, nor fixed; it requires a **portfolio of strategies** tailored to preserve value, reduce exposure, and enable recovery within real-world constraints.

2.8. SÜDZUCKER: CIRCULARITY ROOTED IN AGRICULTURAL INNOVATION AND STRATEGIC FORESIGHT



At Südzucker Sugar Division, circularity is not a sustainability add-on but an integral part of core operations. Circular Economy is one of Südzucker Group's 8 impact areas. As one of Europe's largest agri-food processors, Südzucker's strategy focuses on the full valorisation of agricultural biomass. Every component of the sugar beet is assessed for its highest-value application across food, feed, energy, and biochemicals. Circularity at Südzucker is not an end-of-pipe solution but a design choice embedded in business logic. As Geert Van Aelst, Head of Sustainability Sugar Division, puts it, the company's approach centres on '**upcycling over recycling**', emphasising the extraction of value from all by-products through a hierarchy based on market potential. As Van Aelst explains, this means directing every by-product toward its highest-value use. One example is the recently launched Beetkraft®, a paper and packaging innovation derived from sugar beet by-products.

Strategic Alignment with Megatrends and Climate Resilience

Südzucker's operations are shaped by long-term megatrends but remain embedded

in highly variable natural systems. The company identifies emerging risks and builds adaptive practices around these risks. Drought, soil quality, and pests introduce uncertainty that Südzucker responds to with long-term strategies that embed resilience into agricultural planning. This aligns with systems thinking, recognising that agricultural processes are shaped by ecological and climatic feedback loops. **Circularity is a practical tool for buffering volatility by maximising resource utility.**

At Südzucker, new initiatives and projects are evaluated through a structured decision-making process and need to align with its sustainability strategy, including its commitment to the Science Based Targets initiative (SBTi). Risk minimization, a core principle within the CVI framework, is equally fundamental to this model. Projects are de-risked not only through internal screening but also through collaboration with external experts, research institutions, and start-ups that bring in specialised knowledge or agility. These partnerships help Südzucker reduce technological uncertainty and explore alternative valorisation routes for sidestreams.

Source: Südzucker – 2025



BEETKRAFT®: PAPER AND PACKAGING FROM SUGAR BEET

To support economically sound decision-making, Südzucker applies a **business logic rooted in proportionality**: the cost of adapting production processes or developing new circular applications must be justified by the expected value they generate. This includes direct revenue potential as well as efficiency gains or cost reductions. This proportionality logic reflects key elements of the performance economy, where material stewardship and profitability reinforce each other.

Partnerships and Participation

Collaboration, essential to risk mitigation, also opens new valorisation pathways while supporting disciplined decision-making. Implementing circular strategies at scale depends on early and credible alignment with key stakeholders. Because crop decisions are often made a year in advance, timing and economic clarity are essential, and convincing farmers, Südzucker's Sugar Division key partners, depends on building robust business cases.



Thus, Südzucker co-develops business cases that integrate agronomic realities with financial expectations, ensuring that innovation is not only technically viable but also profitable at the farm level. Südzucker emphasises **relationship-building and ecosystem** partnerships to accelerate technological development and reduce uncertainty. These partnerships reflect a multi-stakeholder model of circularity. Südzucker's experience reinforces the insight

that circular transformation in practice is shaped as much by relationships and decision processes as by materials and technologies.

Navigating Policy, Regulation, and the Consumer Dimension

Südzucker's Sugar Division circularity strategy offers a clear example of how industrial ecology, systems thinking, and performance-based investment logic can be applied in a resource-intensive and environmentally exposed sector. Yet the strategy does not operate in isolation. Südzucker actively monitors EU policy developments. However, Van Aelst expresses concern about **policy unpredictability**, which undermines long-term planning and investment confidence. He argues that Europe's success in scaling circularity will depend on its ability to translate regulation into tangible benefits for end consumers, to create demand, not just through subsidies or mandates, but by making circular options convenient and rewarding in everyday life.



Südzucker demonstrates that agricultural circularity is not only possible but already underway when systems logic, market realism, and stakeholder alignment converge. In doing so, it provides a compelling example of how circularity can stabilise production systems while opening new economic opportunities in a climate-constrained world.

Bringing these case studies together highlights the diverse ways circular economy principles are being put into practice across industries. Each organisation takes a unique approach, whether through financial innovation, product design, sidestream valorisation, or governance reform, yet all demonstrate the importance of a systemic perspective that combines technology, business models, policy, and stakeholder collaboration. By showcasing diverse entry points and strategic focuses, these case studies illustrate the multifaceted nature of circular transformation. The following synthesis section explores common strategic approaches and insights across these examples, offering guidance to support broader adoption and impact.

3 FROM AMBITION TO ACTION: ADVANCING CIRCULARITY IN BUSINESS

To support lasting transformation, circularity must be treated not as a side project but as a system-wide strategy. Based on the sectoral case studies and foundational perspectives explored throughout this white paper, we identify **7 strategic levers** that businesses can activate to embed circularity across functions, operations, and value chains. These levers form the basis of a **practical framework for circular business transformation**, providing a structured way to link ambition with execution. This is not just about frameworks and mechanisms, but also about how people make decisions. The foundations explored in this white paper, systems thinking, industrial ecology, eco-and regenerative design, business model innovation, and organisational behaviour, show that circularity is not a

one-off intervention but a sustained, system-wide rethinking of how value is created, maintained, and renewed.

Each of the levers we propose captures a distinct yet interconnected dimension of circular transformation. Taken together, they provide both a diagnostic lens and a strategic roadmap: helping companies assess where they are, identify critical gaps, and focus investment and innovation on what matters most. While grounded in empirical examples, the framework is intended to be broadly applicable across industries and organisational contexts. Companies that activate several of these levers simultaneously are better able to align their circular ambitions with commercial priorities and operational realities.





3.1. STRATEGIC LEVERS TO EMBED CIRCULARITY

3.1.1. Use Circularity to Enable Broader Business and Sustainability Goals

Circularity is not an endpoint. It is a strategic enabler that allows companies to meet broader environmental and commercial goals, including resilience to volatility, emissions reduction, biodiversity protection, improved resource security, and cost optimisation. Firms that **treat circularity as a core strategic lever, rather than an isolated goal**, are better positioned to create durable value. This shift aligns with principles from systems thinking and the performance economy, which emphasise the interdependence of environmental and business systems. Well-integrated circular strategies can unlock cascading benefits across the value chain.

Several case examples show how circularity serves as a pathway to wider strategic goals. At Südzucker, the full valorisation of agricultural biomass supports both ecological resilience and operational predictability, buffering against climate variability and market shifts. Impetus builds diversified income streams from sidestreams, reducing dependency on primary production and lowering financial risk, especially in early development stages. Meanwhile, JUUNOO

designs value preservation into its modular wall systems, ensuring financial continuity through resale guarantees, legal safeguards, and reuse-driven contracts.

By embedding circularity into the core of their business models, these firms demonstrate that it can serve as a vehicle for long-term advantage, rather than a stand-alone environmental ambition.

3.1.2. Collaborate to Unlock System-Level Value

Circularity thrives on collaboration. Whether it is materials, knowledge, infrastructure, or influence, **no single firm can build or sustain circular systems alone**. Systems thinking and industrial symbiosis highlight that the most effective circular solutions emerge when organisations work **with others, not alone**. When companies isolate their efforts, they often leave significant value on the table, in untapped synergies, duplicated costs, and avoidable risks.

Collaboration can take many forms.

Internally, **cross-departmental alignment** between design, procurement, operations, and legal teams can break silos and enable

integrated circular strategies. Externally, **value chain partnerships** (with suppliers, financiers, recyclers, logistics providers, customers, etc.) help companies design more recoverable products, reduce reuse costs, and unlock new value streams. **Cross-sector collaboration** can generate entirely new markets for sidestreams. **Competitor collaboration** accelerates learning and reduces risk. Even **policy advocacy** benefits from a collaborative lens, especially when regulations lag behind practice.

An example of a value chain partnership – between a supplier and a financier, for instance – is using leasing as a mechanism for circularity that can allow banks to retain ownership of assets, consider **residual value** at end-of-life, and **incentivise product returns** to the supplier or service provider for reuse, remanufacturing, or refurbishment. Tools like the Circular Value Index (CVI) can support this process by quantifying expected residual value according to circular design principles and end-of-life outcomes. Leasing thus becomes not just a financing tool, but a structural collaborative enabler of circular business models.

Impetus catalyses cooperation in the agri-food sector, helping firms collaborate even with competitors by focusing on sidestreams rather than core products. Südzucker's long-standing collaboration with farmers shows how circularity depends on aligning biological cycles with economic realities, made possible through trust-based partnerships. JUUNOO builds ecosystems around its wall systems, partnering with recyclers, financiers, and legal experts to preserve product value across uses and ownership changes.

At Knauf Insulation, partnerships are being explored to design building materials for easy, uncontaminated disassembly, reducing recovery costs and improving reuse quality. Barco sees potential in strengthening supplier accountability for input reuse, especially when internal recovery is no longer feasible. Financial actors can also play an enabling role. ABN AMRO, for instance, has the potential to act as a knowledge centre and

convenor around the legal, contractual, and financial enablers of circular business models such as asset-as-a-service, helping to build capacity and alignment across its network in addition to being part of initiatives such as the *Kopgroep Financieren van de Circulaire Economie*. These approaches align with performance economy principles, whereby value is created not only through products but through the systems that enable those products to circulate.

In each case, **collaboration is not an afterthought: it is a condition for success**. Whether focused on materials, processes, business models, or regulation, collaborative action helps firms go further, faster, and with greater impact.

3.1.3. Embed Circular Thinking Across Functions, Not in Silos

Circularity cannot be siloed in sustainability teams. Embedding a circular mindset requires more than staff training. It depends on structural alignment across leadership, incentives, and decision-making processes. Organisational culture, governance, and cross-functional integration determine whether circular ambitions take root or remain isolated experiments.

This alignment is reinforced by robust metrics and accountability. Barco uses its proprietary Ecoscore to guide product design and ties it directly to KPIs, ensuring sustainability metrics influence business decisions across departments. JUUNOO brings together legal and financial expertise to structure contracts and financing models that preserve residual value and enable material reuse across multiple cycles.

IKEA, meanwhile, demonstrates how a circular mindset can scale when internal systems, from supply chain and procurement to investment planning and product development, are coordinated to support long-term circular goals. This **integrated governance enables bold, long-term strategies without sacrificing operational traction**. This alignment is visible at the highest level, where the CEO also serves as Chief Sustainability Officer,

reflecting a deliberate choice to embed environmental responsibility into business leadership.

This pattern echoes the behavioural and organisational dynamics explored earlier, where internal alignment across leadership, incentives, and daily operations becomes a pre-condition for embedding circularity system-wide. In short, **culture and structure must evolve together** to support circular innovation. Organisations that embed a strong circular mindset across departments tend to move faster, experiment more confidently, and hold onto progress. Cross-functional integration reflects a systems mindset and supports resilience by enabling organisational learning, trust, and internal alignment. **When everyone owns the circular agenda, firms are more likely to move from isolated pilots to enduring transformation.**

3.1.4. Take the Lead, Don't Wait for Regulation

Firms that define their own direction, rather than wait for regulatory clarity or competitor movement, are better positioned to navigate geopolitical uncertainty, shifting policy landscapes, and evolving customer expectations. This reflects the logic of the performance economy, where circular strategies enhance resilience and create new ways to deliver long-term value.

IKEA actively embeds circularity across its operations, from procurement and resale to product design and return logistics. Its internal investment planning and executive structure enable early experimentation, helping shape internal standards and market expectations. This strong and focused internal compass does not deviate along with geopolitical cycles, allowing for resilient, long-term operational planning and execution.

Knauf Insulation, operating across diverse regulatory contexts, adapts its strategy to local conditions through strong coordination with regional teams. Its product nature and family ownership support a long-term outlook

that is both adaptive and resilient. Rather than wait for uniform regulation, the company works to understand its local operational context and uses this insight to guide its circularity strategy. This includes building knowledge now in small-scale projects in order to secure future business.

These examples show that circularity, when led from within, becomes a **tool for strategic positioning and future-proofing**. Firms that lead the way help set industry benchmarks, guide policy dialogue, and build systems that remain resilient under evolving constraints.

3.1.5. Design for Circularity from the Outset

Circularity is most effective when it begins at the design stage. Designing for durability, modularity, and material transparency enables future recovery, reuse, and repurposing. Retrofitting circularity at the end of a product's lifecycle is often inefficient, costly, and prone to material loss. This reflects principles of eco-design and regenerative design, which **prioritise lifecycle value by embedding it directly into the product architecture**. Yet design alone is not enough. When business models are built to delay obsolescence, companies must also adjust their revenue logic – for example, moving from volume-based sales to value-through-service or second-life recovery. Failing to align the business model with the design intention risks undermining long-term circular outcomes.

Designing for circularity starts with anticipating product flows and integrating value preservation from the beginning. JUUNOO exemplifies this by engineering modular steel frames for reusability, structured to be returned at a pre-agreed residual value. Barco's Ecoscore evaluates energy performance, end-of-life readiness, and material composition during product development. The score informs design decisions and links directly to KPIs, aligning sustainability with business performance.

While JUUNOO and Barco focus on physical product design, Impetus applies circular thinking to **process design** as well. It begins with detailed mapping of sidestreams, followed by interventions to **eliminate or valorise by-products before they become waste**. This shifts the focus from downstream waste management to upstream prevention and value creation. Beaulieu International Group integrates recyclability into product development by designing mono-material solutions and collaborating with recyclers and converters during the innovation phase. Its iterative development process ensures that circularity is not just a design goal but a built-in feature.

These examples show that design-stage decisions unlock long-term value, reduce recovery costs, and strengthen product performance. Designing for circularity is not about adding complexity. It is about **anticipating how materials, products, and systems can flow more intelligently over time**.

3.1.6. Shape Demand, Don't Just Respond to It

In a circular economy, firms not only adapt to shifts in demand, but actively help to shape them. Behavioural science shows that choices are rarely made in isolation. People gravitate toward what is easy, accessible, and socially reinforced. When sustainable options are made visible, convenient, and part of the norm, they become far more likely to stick.

This underscores the behavioural insight that **context and structure shape decision-making** at scale.

IKEA exemplifies how companies can normalise circular behaviours through design and customer experience. By integrating resale platforms, product return systems, and components designed for reuse, it removes friction and makes circular choices feel intuitive. These efforts help shift consumer expectations about what is valuable, convenient, and acceptable in the lifecycle of household goods.

Some firms are just beginning to explore this opportunity. At Südzucker, the transition toward alternative proteins offers the potential to reshape dietary norms and redirect sidestreams into higher value uses. Through collaboration with food producers, retailers, and public stakeholders, the company is well positioned to support the protein transition and help steer consumer demand toward more regenerative food systems.

ABN AMRO shows how financial institutions can influence circular norms through access. By embedding circular criteria into its investment offerings and credit frameworks, the bank lowers the barriers to participation for circular businesses and makes financing for regenerative models more accessible. In doing so, it helps redefine what is seen as bankable, viable, and forward-looking





in the market. This marks a necessary evolution in the role of finance: from passive ESG screening to proactively valuing the systemic resilience, service models, and demand-side interventions that underpin circular transformation.

Combined, these examples highlight a shift from compliance to cultural leadership. When companies **collaborate to shape expectations, reduce friction for adoption, and make circularity the path of least resistance**, they do more than follow trends. They help establish new societal norms around what is valuable, desirable, and responsible.

3.1.7. Start Small, but Build for More

Many companies begin their circular journey with quick wins: lightweight packaging, minor design tweaks, or isolated reuse pilots. These are not only practical starting points, but also essential ones. They reduce risk, build confidence, and create early proof-of-concept. The important thing is not to stay there. **Early actions must become stepping stones toward broader transformation.**

This progression reflects principles from lifecycle thinking and eco-design, which call for integration across systems and phases. Circularity is not achieved through one-off improvements, but through learning that informs deeper redesign over time.

Beaulieu International Group offers a clear example. Its circularity efforts began with material reuse and end-of-life strategies. Gradually, the company has integrated mono-material design, recyclability, and collaboration with downstream partners into its innovation process. What began as targeted interventions now informs broader design and business decisions.

A similar logic underpins the work of Impetus, which supports a phased approach to sidestream valorisation. Recognising that launching a high-tech circular solution from zero is inherently risky, the team often starts with lower-risk, mid-value applications such as animal feed or pet food. This generates early revenue, reduces capital risk, and helps partners build operational experience. Insights from these initial phases are then used to explore more advanced upcycling routes, with each step helping to refine technical processes and de-risk future expansion.

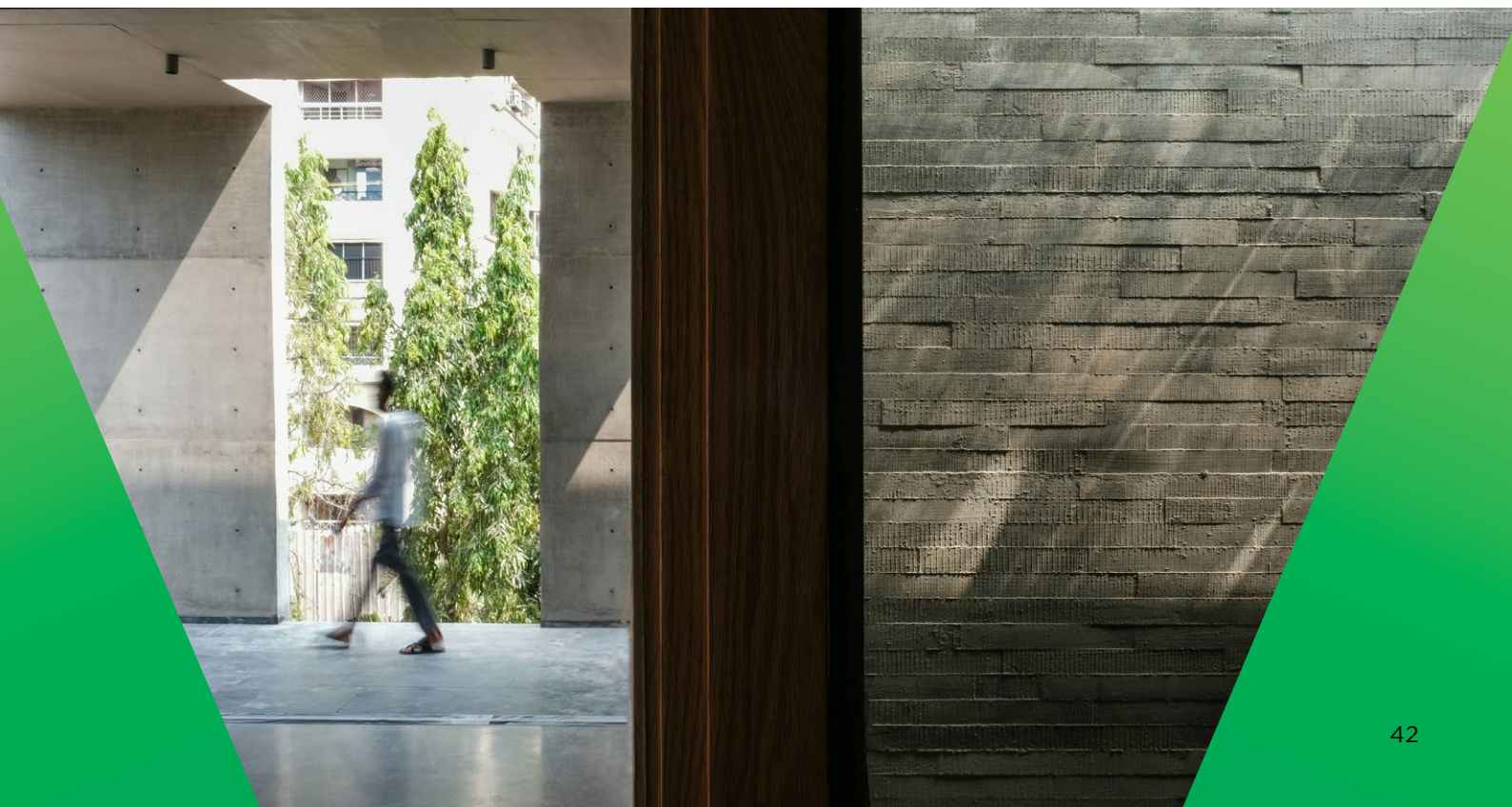
These examples show that **starting small is not a limitation**, but a practical strategy. When used intentionally, early wins become a foundation for systemic change, anchored in experience, guided by feedback, and aligned with long-term goals.

3.2. MOVING FORWARD: A SHARED RESPONSIBILITY

While circular strategies offer powerful tools for transformation, they are not a cure-all. Overreliance on recyclability metrics, neglecting social equity, or focusing on technical fixes without reshaping demand may lead to circularity in form but not in function. True circular transformation challenges not only material flows but also the deeper business models and consumption norms that drive them. The next phase of circular transformation will be shaped not only by policy but by leadership, experimentation, and trust. The Clean Industrial Deal, CEAP, and other EU frameworks provide a strong foundation. But their impact will depend on how companies embed these principles into product development, strategy, customer relationships, and investment choices.

Firms that integrate circularity across functions, collaborate with partners, and re-imagine value creation with customers are already shaping the next generation of business. The case studies in this white paper show what becomes possible when ambition is matched with structure, culture, and execution.

The 7 levers put forward here are not meant to be applied in isolation. Their strength lies in how they interact to reinforce behavioural shifts, operational structures, and innovation capacity. Together, they offer a shared language for navigating circular transformation across business, policy, and investment contexts. Tools like the Circular Value Index (CVI) can support this shift by helping firms identify which products and services offer the highest potential for circular value retention. By linking residual value, reuse cost, and risk, the CVI enables better design decisions, clearer investment cases, and alignment across design, finance, and operational strategy. The question is no longer whether to act, but how to scale what works, adapt to context, and remain focused on long-term value. Circularity is not a destination. It is a strategic mindset that must be deeply owned, shared, and continuously refined.



To close, the table below summarises the strategic levers explored throughout this white paper the core focus of each, and the key value they unlock. These are not stand-alone actions, but mutually reinforcing strategies that support systemic, scalable circular transformation.

3.2.1. 7 Levers for Circular Integration

STRATEGIC LEVER	CORE FOCUS	VALUE UNLOCKED
Use Circularity to Enable Broader Business and Sustainability Goals	Position circularity as a means to drive resilience, cost control, and competitiveness	Avoids narrow sustainability framing and aligns with core strategy
Collaborate to Unlock System-Level Value	Work across and beyond the value chain to build shared solutions	Addresses system fragmentation and limited individual influence
Embed Circular Thinking Across Functions	Align governance, KPIs, culture, and operations to support circular priorities	Overcomes internal silos and inconsistent decision-making
Take the Lead, Don't Wait for Regulation	Drive internal experimentation and learning ahead of mandates	Mitigates risk of policy lag or regulatory uncertainty
Design for Circularity from the Outset	Build durability, modularity, and recovery into product and system design	Avoids costly retrofits and material loss
Shape Demand, Don't Just Respond to It	Influence norms and make circular choices easy and desirable	Tackles consumer inertia and perception gaps
Start Small, but Build for More	Use low-risk entry points to build credibility and scale transformation	Balances risk with ambition; turns pilots into long-term advantage

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