

Mind the gap(s)

MIND THE GAP(S)

n the dawn of the 21st century, humanity stands at a critical juncture. As our global population surges towards 10 billion by mid-century, the urgency to embrace a more sustainable, equitable, and resilient economic model has never been more pressing. The linear 'take-make-waste' economy that propelled our progress for decades is no longer sustainable, and the alternative—the circular economy—offers a radical transformation that carries both immense opportunities and significant challenges. This report delves into the intricacies of this monumental shift, examining the theory and background of circularity, profiling pioneering companies and organizations, and, in the final chapter, utilizing AI analysis to dissect the complex interplay between government policies, corporate strategies, and consumer preferences.

The scale of the transition to a circular economy cannot be overstated. It demands a fundamental rethinking of how we design, produce, consume, and dispose of goods, with a focus on preserving resources, minimizing waste, and fostering regenerative processes. Inextricably linked to this paradigm shift are the oftenoverlooked footprints of the materials we use and the hidden human costs associated with forced labor or underpaid labor. A just transition must not only address environmental concerns but also ensure social equity and economic prosperity for all.

The success of the circular economy hinges on the concerted efforts of various actors—governments, businesses, and consumers. Governments must craft and implement forward-thinking policies and regulations that incentivize the adoption of circular principles, fostering innovation and collaboration in the process. Businesses, as the driving force behind production and innovation, are uniquely positioned to redefine product lifecycles and supply chains, embedding sustainability and circularity in their core strategies. Consumers, on the other hand, play a crucial role in demanding and embracing sustainable products and services, ultimately shaping the market with their choices.

However, there exists a disconnect between these actors various levels, with most of the momentum seemingly coming from policy and some company initiatives. Consumer demand, although increasingly favoring sustainability¹, seems to be lagging particularly when it comes to reducing consumption². This gap necessitates a deep understanding of the interdependencies and potential synergies between policy, companies, and consumers to accelerate the transition towards a circular economy.



1 https://sociologiskforskning.se/sf/article/view/22818

2 https://www.sciencedirect.com/science/article/pii/S2666792421000664#bib0029





The third chapter of this report harnesses the power of AI analysis to explore this very gap. By scrutinizing the disparities between the progress of governments, companies, and consumers, we aim to provide valuable insights into how these actors can better collaborate and coordinate their efforts. Unraveling this complex dynamic is essential for the development of effective strategies and initiatives that not only advance the circular economy but also ensure a just and inclusive transition.

"It's central that we create a discourse around circular economy and sustainability in a broad sense that everyone can feel included in"

- Lina Huring

As we stand ahead of unprecedented change, it is vital to acknowledge the responsibility we collectively bear to reshape our economic system. The transition to a circular economy represents a unique opportunity to redefine our relationship with the planet and its resources, promote social equity, and safeguard our future and that of coming generations. By fostering collaboration and understanding among governments, businesses, and consumers, we can harness the potential of this transformative paradigm to create a more sustainable, just, and resilient world.

This report serves as both a call to action and a roadmap, charting the path towards a successful transition. It highlights the critical importance of aligning goals and priorities among all stakeholders, while also addressing the barriers and challenges that lie ahead. The journey towards a circular economy may be arduous and complex, but the rewards — environmental, social, and economic — are immeasurable.

As you delve into the following chapters, we invite you to engage with the ideas, case studies, and analyses presented, and consider how you, as a government official, business leader, or consumer, can contribute to this monumental transformation. Together, we can forge a new path forward—one that ensures a sustainable and prosperous future for generations to come.

This report was produced by Science Park Borås at the University of Borås in collaboration with Kairos Future. We wish you a thought-provoking read!



WHAT YOU NEED TO KNOW ABOUT THE CIRCULAR ECONOMY

1. WHAT IS IT?

In recent decades, the concept of a circular economy has emerged as a means to unite environmental, economic, and societal objectives, and it has now started to permeate important policy agendas at both European and global levels³.

The transition to a circular economy is seen as a crucial tool for large parts of the business sector to achieve ambitious environmental and climate goals while simultaneously generating economic growth. We are however still lacking a scientifically rigorous definition of the circular economy concept, and many companies' applications and communications focus heavily on the use of recycled materials, which is only one aspect of the circular economy and far from a comprehensive solution⁴.

2.

SOME HISTORY BEHIND THE CONCEPT

The idea of circulating materials is not new. In the past, the term "closed-loop society" was often used, particularly in environmental circles. The circular economy concept has its roots in the early environmental movement of the 1960s and 1970s. Pioneer ecological economist Kenneth Boulding's influential work (1966) laid the foundation for modern circular economy thinking, which took a long time to become widely recognized. Despite its early beginnings, the term "circular economy" wasn't widely known by the general public until the last decade or so, where the visible impacts of the climate and environmental crisis have brought significantly more attention to the need for a systemic shift. The circular economy idea has historically focused on two main parts: how materials flow through an economy, and the economic conditions that support this flow (some would call it incentives).

Boulding introduced the idea of the linear "take-makedispose" economy, called the "econosphere," and emphasized the importance of energy and information in a circular economy. Importantly, he also distinguished between "cowboy" and "spaceship" economies⁵. Cowboy economies are reckless and exploitative, while spaceship economies recognize the concept of limited resources and the need for a sustainable ecological system.

Boulding argued that a spaceship economy should focus on stock maintenance instead of throughput, like Gross National Product (GNP), which most economists still use as a measure of success even today. As a reminder, the environmental movement was evolving after the 1960s as more and more researchers (such as Rachel Carson) identified major sources of pollution. This community of researchers and activists were increasingly worried of the effects of pollution, rather than depletion. Not long after, in 1972, a Club of Rome report "The Limits to Growth" authored by researchers Donella and Dennis Meadows seemed to yet again, highlight the unsustainable nature of a linear economy⁶.

While losing some traction in the 90s and 2000s, the circular economy made a comeback in the 2010s with the Ellen MacArthur Foundation's publication of a roadmap to the circular economy ⁷. Five years later, the European Commissioner to the environment proposed a CE package, and it was then, according to Ekins et al., that CE entered the mainstream⁸. In 2023, after multiple crises affecting energy and material supplies, the societal momentum for a CE is perhaps stronger than ever.

⁴ https://www.sciencedirect.com/science/article/pii/S0921344917302835



³ https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en

⁵ https://www.taylorfrancis.com/chapters/edit/10.4324/9781315064147-2/ economics-coming-spaceship-earth-kenneth-boulding 6 https://www.taylorfrancis.com/chapters/edit/10.4324/9780429493744-

^{3/}limits-growth-donella-meadows-dennis-meadows-j%C3%B8rgenranders-william-behrens

⁷ https://www.werktrends.nl/app/uploads/2015/06/Rapport_McKinsey-Towards_A_Circular_Economy.pdf

⁸ https://www.oecd.org/cfe/regionaldevelopment/Ekins-2019-Circular-Economy-What-Why-How-Where.pdf

3. SO, WHY DO WE NEED IT?

Transitioning to a circular economy is crucial for addressing the challenges of resource depletion, environmental degradation, and waste reduction, all things our current economic model desperately needs.

By adopting innovative business models that emphasize resource efficiency, closed supply chains, regenerative design, and reverse logistics, we should succeed in extending product lifespans and minimize waste. Financial sustainability is also key consideration for these new models, which face certain barriers that need to be addressed through public policies and changes in business organization (one of the reasons why this report addresses policy, businesses and consumer perspectives).

As the world is transitioning away from fossil fuels and increasingly relying on critical minerals to power the low-carbon economy of the future (think wind turbines, solar panels, electric cars), it is an incredible opportunity to ensure that we also simultaneously build a more efficient system. Many of these metals and minerals have remarkable recycling potential - provided this is followed by an economic environment that doesn't systematically reward exploitation of virgin materials. There are also some geostrategic considerations: as a geographic area producing little of the metals and minerals transformed, it may be of tactical importance to create systems that ensure material remain on the continent.

Countries such as China (the first to implement CE at the center of policymaking), European Union Member States, and several regions and cities are leading the way in implementing circular economy strategies⁹.

9 https://www.oecd.org/cfe/regionaldevelopment/Ekins-2019-Circular-Economy-What-Why-How-Where.pdf Most to effectively measure progress, it is essential to develop and apply appropriate indicators as we continue to promote and expand circular economy practices globally. What Circle Economy is doing with the Circularity Gap Report is an excellent example of such tracking¹⁰. But we can already now offer some circularity system principles for anyone interested in building a resilient organization today.

10 https://www.circularity-gap.world/2023





4. SOME PRINCIPLES FOR BUILDING CIRCULARITY

System principle 1: REFUSE UNNECESSARY AND UNSUSTAINABLE CONSUMPTION

This foundational principle encourages mindful choices that avoid depleting finite resources. By rejecting single-use items, unsustainable materials, and wasteful practices, individuals and organizations foster a culture of responsible consumption. Businesses can contribute by offering sustainable alternatives and supporting circular policies.

System principle 2: REDUCE THE NEED FOR MATERIAL RESOURCES

The circular economy seeks to design out unnecessary resource consumption for value creation. This can be done through a much higher degree of services where material products are shared between many users, for example in rental systems, or by reducing the need for physical products, as in the example of streaming media (although dematerialization is still a debated concept, see Smil 2016 for examples arguments in favor and Fix 2019 for examples arguments against).

System principle 3: KEEP PRODUCTS AND MATERIALS IN USE

Examples of approaches include creating new customer offerings that extend the use of the product, such as through second-hand sales or repair. It is also about making new products that can be used for a long time (based on quality of use, function, aesthetics and emotional values) and facilitating already in the design process, for example reconditioning or upgrading to extend the life of the product.



System principle 4: DESIGN OUT WASTE AND POLLUTION

An exciting approach is to implement demand-driven manufacturing to avoid overproduction. It can also involve applying industrial symbiosis, where waste from one industry becomes a raw material in another and enables environmentally safe recycling of materials. It also means that the product is both safe to use and that the systems around products are designed to promote resource efficiency, for example so that more users can use the product.

System principle 5: REGENERATE NATURAL SYSTEMS

This principle, along with the first one, represents perhaps the biggest challenge to our current economic system. We ought to aim to use renewable materials whose production and use contributes to maintaining biodiversity and restoring natural systems. The materials should then be safely returned to ecosystems when used up to their fullest extent.

In order to get to a circular economy, we need to measure the right things.



SCIENCE PARK BORÅS' CIRCULARITY CHECKLIST

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Science Park Borås fosters an innovative ecosystem that nurtures, supports, and advances circular innovations and business models. To gauge the circularity of a product or service, we've devised a 10-point checklist with key questions that help evaluate a solution's circular impact.

1.

DEFINING CIRCULARITY:

What does circular economy mean in the context of the product or service? How many loops are involved, and what happens to the materials and products after their usage or contract expiration?

2.

TRANSFORMATION JOURNEY:

How can we describe the shift from a linear to a circular model? Circularity transcends mere incremental changes - what makes this solution transformative? *Who* should do *what* and *when*?

3.

PROFITABLE & SCALABLE BUSINESS MODEL:

How will the solution generate profit? Is it a smallscale operation or designed for large-scale implementation? Can it be scaled up?

4.

WINNERS & LOSERS:

Who benefits or suffers economically, socially, and ecologically from the circular transition? Consider internal and external stakeholders, as well as local, national, and global implications.

5.

IDENTIFYING UNINTENDED CONSEQUENCES:

Does the proposed solution lead to increased energy consumption, transportation, management of dangerous chemicals or other undesirable effects?

6. MATERIAL FLOWS:

How does the solution impact the supply and demand of materials? Does it reduce the extraction of virgin materials? What are the transportation implications for material flows?

7.

GLOBAL CONSUMPTION PRESSURE:

Does the solution help decrease per capita consumption in countries with high consumption levels? Conversely, does it enable increased consumption for those who need to raise their consumption levels?

8.

BALANCING CONFLICTING OBJECTIVES:

What conflicts of objectives exist, and howare they addressed? For instance, is there a clash between economic profitability and short-term sustainability? Does the solution disproportionately benefit affluent individuals while adversely affecting vulnerable populations socially, ecologically, or economically?

9.

REGULATORY & POLICY CHANGES:

Are changes in regulations or policies necessary to enable the solution's success within the economy? Can the product or service still operate under existing regulations while awaiting improvements? Are there competitive advantages in investing now, before the enactment of new laws and regulations?

10.

MONITORING CIRCULAR SOLUTION IMPACTS:

How are the economic, social, and ecological effects of the circular solution assessed? What metrics can be used to measure these impacts? How are short-term and long-term consequences evaluated, and which stakeholders are affected?



CRITICISM OF THE CIRCULAR ECONOMY

As the circular economy continues to gain traction in academic discourse and especially, as it is embraced by legislators and businesses alike, and has been identified as an important tool for reconciling environmental and social objectives. However, there is criticism of the concept and how it is used, and there is still a lack of knowledge about the actual environmental and economic consequences of the circular economy¹¹. Several voices question whether it is at all possible to decouple economic growth from the use of natural resources, as advocates of the circular economy claim¹².

One perspective in this criticism is that absolute decoupling is not compatible with the laws of thermodynamics¹³, and achieving a truly sustainable state requires a severely restricted use of materials, where materials do not get a free pass by being 'circulated'. Such a scenario should reasonably be associated with economic decline rather than growth (so called "degrowth").

Furthermore, there is a social reality that is obscured by the conventional understanding of how the global economy works, most simply described as a balance between supply and demand. A truly fundamental principle of value creation in the global economy is the asymmetric relationship between rich, 'consuming' regions and poorer, 'producing' regions. In terms of actual inputs (natural resources, energy, labor hours), the "consuming" regions buy the equivalent of 4 hours of labor but only pay the equivalent of 1 hour of labor¹⁴. The relationship is similar if the economic transactions are converted into resource use, energy use, and land area. This skewed distribution is argued to be an obstacle to achieving sustainable resource use on a global scale, particularly in terms of equity and distribution, and there is no evidence that the circular economy would drastically change this relationship.

Examples of criticism are that the concepts are unclear and difficult to measure in a meaningful way, or that companies often adopt circular solutions for parts of their business model while the basic model remains constant. One example is clothing companies developing second-hand models while the strongest economic incentives are still to sell newly produced clothes. Furthermore, the circular economy seems too often to be used synonymously with recycling, which in itself constitutes an important piece of the circular economy puzzle but often has a relatively low environmental benefit. Given the definitions in the previous paragraph, it is clear how inaccurate it is to reduce the circular economy to only a question of material recycling.

Based on the criticism, it becomes clear that the circular economy should not be seen as a utopian end goal, but as a tool for social development with the aim of reducing the overall environmental impact. At the same time, a transition to a circular economy requires major changes in the production and consumption of goods and services. This puts the focus on how business models and consumer behavior must change.

So how should companies and actors who want to change act, especially when even the definition of the circular economy is not completely clear (primarily to medium and small sized businesses).

Science Park Borås helps companies and actors who want to change. A good approach is to start from the needs of the customer in relation to the circular system principles presented in the previous section.

11 https://onlinelibrary.wiley.com/doi/full/10.1111/jiec.13187

- 13 https://www.hup.harvard.edu/catalog.php?isbn=9780674281653
- 14 https://www.tandfonline.com/doi/abs/10.1080/13563467.2019.1598964

¹² https://www.environmentandsociety.org1/mml/prosperity-without-growth-economics-finite-planet

¹⁵ https://lup.lub.lu.se/search/publication/e879b9b1-85ff-4e65-afaf-a64558ea218a



CASE STUDIES IN THE FUTURE CIRCULAR ECONOMY

The road to circularity will be a long one. According to the Circular Gap Report, the world is only 7,6% circular, which is less than the year before. Despite this, many companies and organizations and pushing through and pioneering circular products, business models and more. In this section, we take a look at those who are leading the pack, those who venture into a new era of doing business.

This list is not an endorsement by Science Park Borås, but rather a mood board for inspiration and ideas where we can learn from those who have started. "The wisest mind has something yet to learn" wrote George Santayana and that is the purpose of this section. The transformation to a circular society will require major change, hence the importance of examples, case studies and role models – all in various stages of development.

HOW TO DIFFERENTIATE CASES

Our current economic model puts private property as a central pillar at the core of this system. While private property is vital for many to feel a sense of ownership and will to build, improve and care for, shared ownership can in other cases be a warranted and efficient form of property in the hands of a collective. Think of shared laundry rooms, public parks, urban shared bicycle schemes. We observed a number of cases in which shared ownership tends are slowly but surely seeping into the mainstream.

In this analysis, we split cases along two axes: the product or service tends towards either private or shared ownership. Similarly, the company or organization building the circular product can tend towards system change or the individual product or service's change. See figure 1 for the graphical representation of these variations.

We need to buy less stuff is the mantra most of us know by now. And it's true, the first principle of circular economy is refuse - refuse to buy. But in many cases, we still don't have a choice. Here are four different categories of different companies and practices that all have the same goal: to help us reach a circular society.

"We see hints that European consumers at least some - are moving towards postconsumerism"

- Dr. Annette Cerulli-Harms

System oriented

SYSTEM-ORIENTED COMPANIES WITH SHARED/RENTAL MODELS

These enterprises have cracked the code on leveraging shared resources or services to effect meaningful system-wide changes. By encouraging collective use and management of resources, they are successfully showcasing how shared responsibility can coexist with, and indeed drive, broadbased changes in business operations.

SYSTEM-ORIENTED INITIATIVES WITH PRIVATE OWNERSHIP

These organizations, while maintaining the traditional sense of ownership, are engrossed in transforming entire systems to align with the principles of circular economy. From rethinking luxury to establishing repair subsidies, they are not merely tweaking products but pioneering significant systemic shifts.

Owning

Sharing / renting

PRODUCT-ORIENTED COMPANIES WITH SHARED/RENTAL MODELS

These actors excel in driving changes at the product level, while promoting collective usage or rental practices. Their focus on individual products or services does not impede their commitment to shared use; instead, it drives them to create more efficient, rentable or shareable products, thereby propelling the principles of the circular economy at a granular level.

PRODUCT-ORIENTED COMPANIES WITH PRIVATE OWNERSHIP

They are the custodians of innovations that make singular products or services more sustainable and waste-free, demonstrating how traditional private ownership can harmonize with the principles of a circular economy. Despite focusing on individual products, their impact ripples through the market, pushing consumers and other companies to rethink the norms of consumption and waste.

Product oriented



SYSTEM-ORIENTED COMPANIES WITH SHARED/RENTAL MODELS

Within the Climate 2030 initiative, Science Park Borås has joined forces with West Pride and Elis Textile Service to pioneer a sustainable approach to festival apparel, aiming to reduce the environmental footprint of clothing provided to festival volunteers.

In past events, volunteers were given brand new work clothes to wear during the festival, which they could then keep afterwards. For West Pride, these clothes were considered used post-event, given that they were adorned with details such as the year, sponsor names, or other event-specific information, which rendered them obsolete once the event concluded.

However, 2023 heralded a shift towards a more sustainable approach with the introduction of looped event clothing. Any ephemeral elements were stripped away, and the decision was made to incorporate recycled textiles from the healthcare sector - a strategy successfully implemented at the Way Out West music festival in the previous year. The shirts were supplied by Elis, a textile service company that washes and rents out workwear to various industries and the care sector. These shirts had been discarded for diverse reasons.

Previously destined for material recycling, these shirts were repurposed to serve as West Pride's official recirculated shirts, marking a step forward in Region Västra Götaland's push for circular event clothing under the Climate 2033 initiative. While material recycling is a feasible alternative for such clothes, maximizing their lifespan in their original form offers the most environmentally friendly low-impact solution. Straight from the land of tulips and windmills, Chainable is the new circular kid on the block. The Dutch company, founded in 2020, crafts modular kitchens with a lifespan of up to 60 years, designed to outlive the average kitchen which typically hits the scrap heap after 15 years. Their secret? A clickable installation mechanism that makes tiling and finishing unnecessary, hence saving loads of construction materials. The design allows for easy disassembly with walls left unscathed and no need for repair work when the kitchen is disassembled.

Chainable's approach means less waste, with a considerable reduction in the 40,000 tons of kitchen waste produced annually in the Dutch rental sector. It's also a kitchen-as-a-service. Customers sign up for a subscription plan, with a contract term of 15-20 years, during which Chainable guarantees up-to-date kitchen appliances at all times. The company takes full responsibility for delivery, installation, maintenance, and end-of-life disposal, all included in the subscription fee. Chainable claims that the total cost of ownership is lower than owning a traditional linear kitchen over time. This is because during refurbishment and renovation, their circular kitchen requires less maintenance. In Sweden, Modexa offers a similar process for building and kitchen renovations using industrial precision to replace only needed parts in the matter of hours, ensuring occupants can keep living in their apartments while renovations take place.





TOMRA Systems ASA, a Norwegian multinational corporation, is known as the worldwide leader in reverse vending machines and sensor-based sorting solutions for the recycling, mining, and food industries. Today, TOMRA's systems guide and optimize resource flows, ensuring that waste is minimized, and valuable resources are not lost.

TOMRA's innovative solutions have been particularly impactful in the context of container deposit schemes (known to Swedes as pant!). The reverse vending machine can take in used beverage containers and, in return, dispenses a small cash sum. Right now, only Scandinavian countries have implemented deposit schemes, but EU proposals in the works are aiming to bring this to the whole union. The Velib' system, Paris' public bicycle sharing program, has been integral to this transformation. Established in 2007, Velib' is a testament to the city's commitment to sustainable mobility, as it was also one of the first cities to offer this service. With nearlt 20,000 bicycles available 24/7 across 1,400 stations, Velib' has become an integral part of Parisian culture. Since the pandemic, Paris has also been praised for rapidly expanding its biking infrastructure to impressive levels in a short amount of time.

The Velib' system is an exercise in simplicity and convenience, yet its impact on the city's circular economy is profound. Users, whether residents or tourists, can easily rent a bike from a nearby station using a credit card or a dedicated mobile app, and return it to any station across the city. This flexibility not only encourages use but also ensures efficient circulation of bikes, preventing idle assets and reducing the need for additional manufacturing. The system offers both mechanical and electric bikes, catering to diverse needs while promoting a low-carbon lifestyle. Hopefully they'll get cargo bikes soon! Boasting almost half a million subscribers, Velib' is not just a bike-sharing program; it is a testament to the power of circular, sustainable living in the heart of urban landscapes.

SYSTEM-ORIENTED INITIATIVES WITH PRIVATE OWNERSHIP

ReTuna Återbruksgalleria, located in Eskilstuna, Sweden, offers a unique shopping experience in the world of retail. This innovative establishment, often hailed as the world's first recycling mall, is pioneering the trend of sustainable consumption. The mall is conveniently situated next to the town's recycling center, cleverly allowing for the direct transfer of goods from the recycling depot to the mall's retail stores.

Every item sold within the mall's walls carries a distinct tale of renewal. ReTuna is a haven for secondhand goods, refurbished items, and upcycled pieces. Once discarded belongings find new life and purpose here, illustrating the power of transformation and the potential of waste. Through this model, ReTuna provides a tangible demonstration of the circular economy in action, turning the traditional retail concept on its head.

Beyond merely serving as a shopping hub, ReTuna also provides educational opportunities. The mall houses a recycling school, which aims to educate the public about environmental and sustainability issues. This commitment to education and awareness-raising enhances ReTuna's mission, making it more than just a shopping destination, but a significant player in the global push towards a circular economy.

While ReTuna takes the lead in circularity, the notoriously conservative luxury branch is also making circular plans. Selfridges for instance, is targeting 45% of its transactions driven by circular products by 2030, primarily through the platform "Reselfridges" which was initially launched as a resale platform but now encompasses rental, repair, refill, and recycle.

Although the challenge is formidable, considering Reselfridges currently only accounts for 1% of transactions, the retailer has made some promising strides. Between 2020 and 2021, it facilitated over 28,000 repairs and rented just 2,000 items. The goal? To pivot from a linear, transactional model to a circular retail future, one where every item has a life beyond its first purchase. The Galeries Lafayette in Paris have also dedicated 500 square meters to (RE)STORE, a space for second-hand players and sustainable brands, while Petit Bateau in France is incorporating second-hand items in its retail spaces. Increasingly, this is becoming standard practice. The future of retail seems to increasingly be a hybrid.

The United Repairs Centre in Amsterdam is carving out a unique niche in the realm of circular economy, aiming to make "clothing repair the new cool." At its heart, the Centre strives to support leading European apparel brands in their quest for circularity by providing high-quality clothing repair services that extend the life cycle of garments and reduce environmental impact. Yet, their mission doesn't stop at sustainability; they're also creating local employment opportunities, offering training and jobs to individuals with refugee backgrounds, young adults, and other job seekers distanced from the labor market.

As a key player in Amsterdam's burgeoning circular economy, the Centre has a distinctive business model that merges sustainability with supply chain efficiency. Not only do they promise to repair garments within seven days, but they also collect data to help brands measure and refine their customer engagement strategies. This dual approach creates a unique symbiosis where the Centre supports brands in reaching their sustainability goals while simultaneously offering insights into customer behavior and product durability.

URC is determined to create a significant economic impact in the region through the creation of employment opportunities, aligning their vision not only with environmental sustainability but with social responsibility as well. This forward-looking Centre is a model of the potential for circular economy initiatives to not only transform industries, but communities too.



The Austrian Reparaturbon is a fascinating initiative designed to encourage a circular economy by promoting the repair of goods rather than their replacement. Launched in 2020, this scheme provides a 50% reimbursement, up to €100, on repairs of certain electronic and electrical devices, bicycles, shoes, and leather goods. The genius of the Reparaturbon lies in its simplicity: take your item to a repair shop, pay for the service, and submit the receipt online to get half of your money back. Not only does it combat the culture of disposability, but it also supports local businesses - a double whammy for sustainability and economy.

The Reparaturbon is more than a coupon though. It's a statement, a challenge to the throwaway culture we've become so accustomed to. Funded by the city of Vienna and the Austrian Ministry of Climate Action, Environment, Energy, Mobility, Innovation, and Technology, the program aims to reduce waste and CO2 emissions by extending the lifecycle of everyday items. As of 2022, the program had already reimbursed more than €2 million to over 24,000 participants, and the numbers continue to rise. The Reparaturbon is proving that there's not just life, but also value, in the old adage, "one man's trash is another man's treasure"

Public organizations around Europe are also actively looking for creative ways to integrate circular principles in their public procurement processes. Helsinki, set out to renew its IT equipment with an circular mindset. The tender was designed as a model for swift IT renewal, with clear focus on energy savings. The initiative was not a small-scale experiment either - it was estimated that it would cover around 7,000 basic computers, along with 2,000 laptops and monitors. The initiative yielded an estimated total lifetime cost savings of 288,000 \in for electricity and slashed CO2 emissions by 27.4%.

Even the Ministry of Defence in the Netherlands (MODNL) has attempted to integrate circular economy principles into its procurement of textiles. In the procurement of towels and overalls, the MODNL explored requirements around recycled fibers. The winning bids resulted in estimated savings of a whopping 233 million liters of water, 69,000 kg of CO2, and 23 MJ of energy. Not only has this policy dressed the Dutch defense forces in the fabric of sustainability, but it also won the Procura+ Award in 2017 for Innovation Procurement of the Year, stitching a badge of honor onto the Netherlands' commitment to the circular economy. Given all this, public procurement may well be one of the best accelerators of circular practices.



Renault's 'Re-Factory' is driving full throttle into the future of circular economies, with a bold and pioneering approach that could set the stage for the auto industry worldwide. Set to become the first European circular economy site dedicated to mobility, this innovative project aims to breathe new life into the old by converting the Flins automotive plant into a hub that, according to Renault, will embody the very principles of a circular economy.

The Re-Factory will focus on four key pillars: recycling and upcycling automotive materials; retrofitting used vehicles; converting thermal vehicles to less carbonintensive energy; and innovation and knowledge sharing. The plan is to recycle up to 120,000 vehicles per year by 2030, and to retrofit up to 45,000 used vehicles per year by 2024. With these ambitious targets, the French automaker is steering towards a future where waste is transformed into wealth and sustainability takes the wheel.



PRODUCT-ORIENTED COMPANIES WITH SHARED/RENTAL MODELS

In the heart of Bucharest, a startup named Evertoys is rewriting the playbook for the toy industry. Founded in 2016, instead of selling toys, it offers a flat-fee subscription service that gives parents access to a vast library of toys for a reasonable monthly cost.

One remarkable feat of this company was the success of its crowdfunding campaign on Seedblink, the first Romanian equity crowdfunding platform. The campaign smashed its €150K target in just 20 days, achieving its goal three times faster than expected. This achievement was not only a testament to the company's compelling value proposition but also an indication of the growing support for the sharing economy in Romania and beyond.

This fresh and dynamic approach to the toy industry is, quite literally, child's play! In the same circular playground, UK-based Brick Borrow has been building quite the reputation. Brick Borrow is like a LEGO lending library, letting its subscribers enjoy an extensive range of LEGO sets for a simple monthly fee. In a bold attempt to challenge the excessive consumption rates in Sweden, a company named Ihopa has introduced a neighborhood sharing box concept. These boxes, stocked with items ranging from premium kitchen tools to bicycle repair equipment, provide a platform for local residents to borrow and return goods as needed.

This strategy, however, goes beyond just sharing; Ihopa focuses on circulating high-quality goods and ensuring their maintenance to prolong usability, thereby slowing down the resource loop. The company's revenue comes from monthly fees paid by subscribers for access to a chosen toolbox. After its inception as a platform for co-buying and co-owning items, Ihopa adopted the neighborhood box model in 2021, collaborating with prominent brands such as Husqvarna. With only a year in operation, the firm estimates a potential 50% emission saving if two out of twenty users decide against buying a new item.





One cannot cover circularity in electronics without mentioning Fairphone, which stands as a beacon of ethical innovation. Having launched in 2013, Fairphone dared to challenge the status quo, sparking a movement for fairer electronics. With every phone created, the company peels back the curtain on the supply chain, fostering a new relationship between people and their devices. From mining to design, manufacturing to lifecycle, Fairphone's commitment to ethical values resonates through every step of the value chain. A community has grown around this mission, fueling the drive to change the way products are made.

Fairphone not only pioneered the materially sustainable phone, but has also done some exploring in the area of circular business models with their Fairphone Easy subscription. When customers sign up for leasing their phone, not only are repairs included, but the cost drops every year, which incentivizes long term use of the phone. For now it's only available in the Netherlands, but we really hope it'll go international very soon!



PRODUCT-ORIENTED COMPANIES WITH PRIVATE OWNERSHIP

There is no doubt that the environmental impact in the textile and fashion industry is large given the amount of textiles we consume and the processes for making them. In response, the Swedish start-up Vividye is creating a textile printing technology developed at the Department of Chemistry and Chemical Engineering at Chalmers University that enables the addition and removal of dye from textiles without damaging the fibers. The technique, comparable to a detergent that reacts with the print and scrubs it off, has the potential to significantly reduce the amount of waste from clothes and make the industry more sustainable, primarily by facilitating reuse and repurposing.

Vividye's focus isn't on dyeing entire garments but rather on the printing aspect, which, they argue, holds both financial and environmental benefits. This nuance allows for the circular use of individual printed garments and opens up possibilities for the renewal of garments with outdated prints or logos. For example, clothing from hospitals or sports teams, which often become redundant due to changes in contracts or sponsorships, can now be refreshed instead of discarded. Renewcell, a Swedish firm, has developed its own inhouse material by converting high-quality cotton and viscose textiles into a biodegradable raw material – they call it Circulose. This process breaks down the textiles into their molecular components, removes dyes, and reforms them into a pulp that can be used to create new textiles. With an annual production capacity of 60,000 tons in their commercial-scale plant in Ortviken, Sweden, Renewcell is attracting the attention of major fashion brands like H&M.

In addition, the company has partnered with Levi Strauss & Co to turn worn-out jeans into new denim garments using their Circulose pulp. This approach reduces environmental impact by lowering the need for water, land, and pesticides associated with cotton farming. Renewcell continues to innovate and expand, with plans for a second plant and an EU-funded project, Blend Re:wind, to separate cotton and polyester blends, a significant challenge in textile recycling.



Framework has radically reimagined the laptop as we know it. The company's innovative approach? Modular laptop design. While not a groundbreaking idea per se, providing modular options seems to be just that in the world of electronics. With many consumers having spent years fighting for the right to repair their products and the rising legislation (in some parts of the world) granting them this right, Framework may have successfully timed their strategy.

Framework's laptops are distinguished by their modularity, effectively allowing users to customize, upgrade, and repair their devices with ease. From swapping out memory or storage to changing ports or even the mainboard, their give consumers control over their devices, substantially extending the product's life cycle. The San Francisco based company has shown an admirable commitment to transparency, providing detailed guides and selling individual components directly to consumers. Interestingly, nothing on their website mentions circularity or sustainability – a new approach?.

Göteborg-based Nudie Jeans have created an identity revolving around repair, reuse, and recycling. When wear and tear finally take their toll, Nudie steps in with a promise of free repairs, forever – or at least until the pants can no longer be repaired. And it's not just a patch job, it's a reincarnation, breathing new life into beloved pairs, with over 65,000 jeans mended worldwide in 2022 alone!

The company turns the concept of waste on its head, viewing old jeans as valuable resources waiting for their second act. When customers trade in their old jeans, they receive a 20% discount on their next pair. These pre-loved jeans are then washed, repaired, and reintroduced to the market, ready to be someone else's pair. When the fabric can no longer function as clothing, it's not the end, but the beginning of a transformation. The denim is either upcycled into new products or recycled at a fiber level, creating a new fabric blend for future jeans.



In a bold move towards sustainability for such a big player, IKEA launched its Circular Hub program in 2021, a testament to the company's commitment to achieving full circularity by 2030. Rather than being consigned to a landfill, ex-display products, discontinued furniture pieces, and second-hand IKEA products get a second shot at life thanks to the program. What was originally known as the "Bargain Corner" has now evolved into an initiative that not only helps reduce waste but also provides a stockpile of inventory for the hub. The scheme enables customers to sell back their used furniture to IKEA and, for those in need of a fix, the company's spare parts program encourages owners to repair and maintain their IKEA items instead of throwing them away.

IKEA aims to turn itself into a climate positive and fully circular company by 2030 – not a small initiative by any stretch of the imagination and one that will be important to follow. The hub is part of the company's broader initiative to embrace renewable and recycled materials, which has already seen around 47 million products refurbished and given a new life. Each IKEA item bought back, depending on its condition, can fetch up to 50% of the original retail price, a clear incentive for both customers and companies to participate in this more conscious form of consumerism.

"Large companies are the ones that have the power to bring about change and they are the ones that people and other companies follow"

- Dr. Juana Camacho Otero



GAPS ON THE ROAD TOWARDS THE CIRCULAR ECONOMY:

Based on the cases studies, the AI analysis and interviews we have identified 14+1 gaps that will need to be bridged to get us one step closer to the circular economy.

THE SCALE GAP:

The "Scale Gap" challenge, an often overlooked hindrance in our transition to a circular economy, points to the entrenched belief that successful businesses must be largescale entities, a concept contradictory to the principles of sustainability, resource efficiency, and waste reduction.

Our definition of success, traditionally rooted in continuous growth and expansion, must shift to value sustainability, local impact, and human-scale operations. Smaller, regional entities, resilient and adaptable, are often better poised to prioritize community wellbeing and local environment while implementing circular economy principles like local sourcing, waste reduction, and product life extension.

Closing the gap:

A nuanced understanding is required for businesses however, especially those in capital-intensive industries, that rely on economies of scale to maintain profitability. The challenge for them lies in striking a balance between scale and adherence to circular economy principles. The transition to a circular economy necessitates a redefinition of success and growth - they should be tools, not the ultimate goals.

THE GROWTH GAP:

The "Growth Gap" represents the mounting paradox between green growth and degrowth views on how to transition to a circular economy.

Green growth advocates argue for economic expansion while minimizing environmental harm through technological and policy innovations (aka. decoupling). In contrast, degrowth proponents argue for systemic reductions of production and consumption, and fundamentally, that infinite growth is unsustainable in a finite planet.

Both call for a harmonization of economic activity, environmental sustainability, and social equity, but only one of them may be the correct path forward. In may 2023, the European Parliament hosted the first major conference on a post-growth Europe, where thinkers, policy and decision makers, academics offered their take on how growth needs to be reformed.

Closing the gap:

Addressing the Growth Gap requires us to redefining our growth narratives (similar to the scale gap). One of the paths forward includes viewing it as a tool for prosperity rather than an end goal in itself. We are likely to hear much more about this in the coming decade and green growth and degrowth increasingly oppose each other in the public debate.





THE TOP-DOWN GAP:

The circular economy is predominantly a top-down effort driven by policymakers and academics due to the mounting need to adress the climate crisis. This is in contrast to sustainability initiatives often propelled by public advocacy.

The circular economy, at its core, involves complex considerations around production processes, material usage, and reform of business models, which typically fall under the domain of corporations and regulatory bodies. Because of that, it often remains an esoteric concept to the general public, leading to a knowledge and engagement gap.

Addressing the Top-Down Gap entails not just simplifying the narrative around the circular economy, but also making it more accessible, engaging, and relevant to everyday life. This is about more than just raising awareness. All major transitions need public support and public understanding- they need to be relatable and have a perceived usefulness.

Closing the gap:

This requires a shift in perspective: from viewing the circular economy as a complex domain solely for corporations and policymakers, to viewing it as a collective responsibility that can and should be grasped by many. The better we understand it, the better we can govern it and ensure it remains a fair and accessible transition for all.

"The transition from linear business models to circular business models is often presented as a consequence of more aware consumers. Specifically, that they are asking for more sustainable products and that climate change is a big issue for them. While that is true to some extent, it assumes that because consumers are aware, they're going to behave differently, that education and information are enough. And that's simply not the case without a more systemic view and a differentiation of consumption at the individual and group level. At this point, consuming is still part of our identity. Brands need to focus on building culture around less consumption" - Dr. Juana Camacho Otero



THE FOCUS GAP:

This gap reflects the struggle to decide what needs to be prioritized and acted upon. There are major differences between the topics that receive considerable attention, such as the sustainability of packaging, and those that are often overlooked, like the necessity to curb consumption levels and reduce packaging reliance altogether.

For instance, as we noted in last year's AI scan, the European narrative around sustainability is highly oriented towards making packaging more sustainable. While this is indeed a commendable effort, it can sometimes overshadow the equally critical necessity of transitioning towards a society that relies less on packaging and consumes responsibly. An excessive focus on one aspect can sometimes dilute the urgency of other aspects and widen the Focus Gap.

The Focus Gap also extends to the roles and responsibilities of different stakeholders in the circular economy. There are major challenges in clearly defining and communicating what the collective, corporations, and the public should each be doing. The complexity of the circular economy makes it easy for responsibility to be passed on, leading to a lack of accountability and action.

Closing the gap:

Analyse carefully where your operations have the most impact on climat and environment. and focus on them and cooperate over "boarders" to achieve the best solutions.

THE REGULATORY GAP:

While the EU and China are leading the way in terms of regulation towards the circular economy transition, there is still a long way to go. By "Regulatory Gap" we refers to the weak regulatory frameworks and policies that effectively encourage and enforce circular practices. This gap manifests very differently accorss the world, but generally we find insufficient legislation that promotes principles such as waste reduction, resource efficiency, and sustainable product design. Existing regulations also tends to promote recycling over refusing and reusing (see principles in chapter 1).

An additional challenge within the Regulatory Gap is the lack of consistent enforcement of beneficial regulations, leading to a disconnect between policy intention and practical application. Because of the knowledge gap mentioned below, it is also hard for it to trickle down practically from policy and academic expertise. Furthermore, regulatory approaches can vary significantly across different regions and countries, which tends to create challenges for cross-border operations.

Closing the gap:

To address the Regulatory Gap, a concerted effort is needed to craft robust, harmonized regulations that facilitate circular practices and these regulations need to be enforced to ensure their practical impact. One of the most important aspects is also to ensure that more expertise around circularity can make its way into organizations and that leaders are regularly kept updated.



THE KNOWLEDGE GAP

While policymakers and large corporations are addressing circularity through laws and strategies, many consumers and small businesses lack a clear understanding of what the circular economy entails and how it can benefit both the environment and their own operations. Without comprehensive knowledge about circular principles and their practical applications, individuals may continue to adhere to traditional linear consumption patterns, perpetuating a cycle of waste generation and resource depletion. Meanwhile, small businesses might be familiar with the concept of circularity, but lack the knowledge to understand what they can do to contribute towards a circular economy.

Closing the gap:

Education and awareness initiatives should be prioritized to inform individuals about the principles, benefits, and practical applications of the circular economy. Efforts should be made to make information accessible, engaging, and tailored to different audiences. By empowering individuals with the knowledge and understanding needed to embrace circular economy practices, we can make it easier for consumers to act in a circular manner. Small businesses with limited resources need outside help to understand how they can move towards more circular practices.

"Many smaller entrepreneurs are struggling to stay up-to-date with circular economy developments, especially if it's not their arena. And most want to address it, so this knowledge gap is important to consider to help them stay equipped to act" THE CONVENIENCE GAP

Consumers are willing to participate in the circular economy, but it is often too burdensome or expensive to choose the circular option over the linear one, hindering many people to act according to their values. Today, it is generally easier to find new products rather than used ones, and it is more costly to buy new clothes made from recycled materials than virgin ones. For most, it is also easier to find places to dispose of general waste, rather than places for recycling. It is not a coincidence that the fashion resale and the refurbished electronics markets are the circular options that are booming, as they are easily available to consumers, while generally being priced lower than brand-new alternatives.

Closing the gap:

Policymakers and companies must make participating in the circular economy less costly for consumers, in order to make it a widespread behavior. Incentives will be key to reach behavior change among consumers, making circular actions cheaper and more convenient.

"If we want people to behave, or to choose more circular options, there has to be circular options and they have to be truly circular options"

- Dr. Juana Camacho Otero

- Lina Huring



THE INFRASTRUCTURE GAP

The infrastructure for extracting, refining, and processing virgin materials has been honed over many years, allowing for large-scale operations that are highly efficient and cost-effective. Industries built around the extraction and production of virgin materials benefit from economies of scale, streamlined supply chains, and well-established distribution networks. These advantages contribute to lower production costs, making virgin materials more financially attractive than recycled alternatives.

Recycling, on the other hand, faces numerous challenges due to fragmented systems and inadequate infrastructure. Recycled materials, especially those of high quality, are often in limited supply, making them less readily available and potentially more expensive than virgin materials. Moreover, the fluctuating nature of recycling streams makes it challenging to guarantee a consistent supply of specific recycled materials, further complicating the manufacturing process.

The investments required to improve and rebuild existing infrastructure, combined with uncertainties of long-term returns on investment, have deterred companies from embracing recycled materials in favor of the established and cost-efficient processes associated with virgin materials.

Closing the gap:

Governments, businesses, and communities need to invest in recycling infrastructure, improve collection and sorting systems, and promote market demand for recycled products. By overcoming these barriers, we can gradually close the cost gap between virgin and recycled materials, making sustainable production a more economically viable choice for businesses and consumers alike.

THE GEOGRAPHY GAP

There are big differences in current levels of circularity between different parts of the world, as well as in the ambitions going forward. Some countries are very active in prioritizing circular economy actions, while others do not consider it a priority. Meanwhile, several countries' economies are based on extracting virgin resources, making such countries more hesitant to buy in on a circular transition.

The EU aims to force new consumer goods sold in the union to meet certain durability criteria, increasing costs for producers who want to access the EU market. This could either drive global adoption of circular economy principles or, if foreign producers disregard the EU in favor of less demanding markets, it could end up only leading to regional adoption within the union.

Closing the gap:

A cooperative and inclusive approach will be vital to ensuring a successful and sustainable transition to a circular economy on a global scale. Supranational agreements and alliances can set common goals and form action plans. Countries with less resources or less interest will likely need support with financing and implementation.

"Hyper-local can lead to more engagement and more effect. People often feel a sense of pride in this globalized world when something is made in or close to the community"

- Lina Huring



THE COMMUNICATION GAP

Companies tout their circularity strategies and zero waste roadmaps, but there is evidence that consumers do not trust companies' own marketing. It might even lead to accusations of greenwashing. Meanwhile, social media ads frequently make consumers buy unnecessary items, purchases they often regret later. The way in which today's marketing works makes it difficult for consumers to understand what actions are actually beneficial for the environment, while facilitating actions that are not in line with the circular economy.

Closing the gap:

Clear, fair and standardized measurements need to be introduced for consumers to have faith in businesses' circularity claims. Additionally, social media platforms can play a role in promoting responsible consumption, rather than fast fashion. Influencers and content creators who embrace circular principles can inspire and educate their followers on the topic, encouraging them to adopt a more conscious and circular mindset.



THE RESILIENCE GAP

There is an evolving challenge in the global distribution of production and extraction processes as regional powers appear to be on the rise. As countries reevaluate the sustainability of outsourced production, reshoring industries has been gaining traction. However, the optimal balance for global distribution of the different phases of production and extraction remains somewhat elusive. The rise of regional powers is shifting the dynamics of trade relationships, which further complicates our understanding of resilient supply chains within a circular economy framework. The reshoring trend could potentially foster regional self-reliance, but without careful coordination, it could also lead to the fragmentation of global production networks and potentially undercut the economies of scale, efficiency gains that global trade brings, as well as the social and cooperative aspects of interdependency.

Simultaneously, the advent of green trade protectionism presents an additional challenge. Green protectionism can potentially undermine the spirit of global cooperation and create hurdles to equitable business practices. As nations move towards more sustainable practices, there is a risk that green standards will be used as a pretext for protectionism. This could inadvertently stall the circular economy's development by creating barriers to the fair distribution of resources and commodities.

Closing the gap:

To mitigate the resilience gap, it is imperative to strike a balance between regional self-reliance and global interdependence in a way that maximizes efficiency, minimizes environmental impact, and fosters equity. International collaboration, coupled with evidence-based policy-making, is crucial to understanding the complex interplay between trade relations, production, and extraction processes. As part of this effort, more nuanced frameworks and tools may be needed to guide the spatial distribution of economic activities within a circular economy. As with the geography gap, supranational agreements and alliances will be key to setting common goals and action plans.

THE INCENTIVE GAP

The Incentive Gap exists primarily because of the lack of sufficient motivations or drivers for various sectors of society to embrace circular principles. At the leadership level, particularly within businesses and corporations, there may be a failure to recognize the circular economy as a strategic priority. This can stem from a focus on immediate financial returns and a lack of understanding about the long-term economic and environmental benefits of circular practices, as well as the global geopolitical context it takes place in. As leaders often play a pivotal role in setting strategic directions and fostering organizational culture, it represents a major hurdle to overcome.

The financial incentives, or lack thereof, are also crucial in driving or impeding the transition to a circular economy. Under current economic structures, linear models often appear more lucrative because they promise quicker returns on investment. Conversely, circular models, though more sustainable in the long run, typically require substantial upfront investment and may take longer to manifest financial benefits. Without adequate financial incentives such as tax incentives, subsidies, or favorable financing, businesses might find the transition to a circular model economically challenging, perpetuating the Incentive Gap.

Closing the gap:

Develop an integrated approach that involves aligning financial incentives, promoting leadership buy-in, and encouraging cultural shifts as well as risk taking in both product design and business model. Those with the necessary financial strength should lead the way.

THE EFFICIENCY GAP

In the transition to carbon-neutral circular societies we are likely to face the challenge of Jevons Paradox. Named after the 19th-century economist William Stanley Jevons, he argued that as technological progress increases the efficiency with which a resource is used, the rate of consumption of that resource may also increase, rather than decrease as might be expected. Consequently, our attempts to make processes more energy-efficient could inadvertently lead to an increase in overall energy consumption, a phenomenon commonly referred to as the "rebound effect."

Transportation, for instance, as it becomes more energy efficient, may increase in usage due to lower costs associated with travel, leading to a rebound in energy consumption. The Digital Transition for example, is expected to require an unprecedented amount of mined materials, thus raising questions about the sustainability of the digital revolution. The production and disposal of digital devices pose substantial challenges to the circular economy, and the demand for rare earth elements could generate new pressures on resource extraction and thus result in more emissions while focus lies on efficiency.

Closing the gap:

To address this gap, strategies must - simply put - be put in place to ensure that improvements in energy efficiency do not lead to exponential increases in energy consumption. This may involve regulatory measures, economic incentives, and awareness campaigns to curb the rebound effect.



THE DEMAND GAP

The "Demand Gap" introduces a critical yet often overlooked aspect of transitioning to a circular economy. At its core, it addresses the disparity between the supply of collected and recycled materials and the often insufficient demand for these materials, hindering the profitability and efficiency of circular practices.

One prevalent manifestation of the Demand Gap is visible in linear material flows, particularly in industries like plastics and textiles. Historically, these materials, after collection and sorting, are often relegated to waste-to-energy pathways, such as incineration, instead of being reintegrated into the economy. This counterproductive cycle negates the very principles of a circular economy.

Closing the gap:

To address this demand gap, innovative and sustainable business models that foster a robust demand for collected and recycled materials are needed. An exemplary initiative is Vinnova's industrial push on textiles, where commercial pre-sorting has become a critical link in creating new circular value chains. This initiative prevents the irresponsible disposal of collected textiles in countries outside Europe and instead fosters their reintegration into a circular textile industry.

Another noteworthy example is Svensk Plaståtervinning AB's significant investment in Motala Site Zero, a testament to the profitability of effective plastic recycling. However, as CEO Mattias Philipsson points out, successful implementation also hinges on increased regulations to curb the wasteful linear plastic recycling practices.

Bridging the Demand Gap is a dual challenge: stimulating demand for recycled materials and establishing regulatory structures that foster circular practices. These twin paths represent a promising way to harness the potential of a truly circular economy.

AN UNCOMFORTABLE GAP?

"The transition will be fair or it will not be ... " said French economist Jean Pisani-Ferry. And there is something to it. Given the scale of the transformation and the elements discussed in the previous gaps, everyone has their role to play. And in a period of history where everything can be made visible - everything from carbon emissions viewed from space and billionaires jet trips on Twitter - symbols will likely be extremely important. It is probably not a complete coincidence that a debate is currently taking place in Europe over the ban of private jets. Amsterdam Schipol airport went first, while certain French members of parliament have proposed banning private jets altogether. Primarily because they are indeed a symbol of the extremely high carbon and material footprints of the ultra-wealthy. So if people are to called upon to adopt sobriety in their consumption patterns, similar rules likely ought to apply to everyone.





AI OVERVIEW OF THE THREE LEVELS BEHIND THE CIRCULAR ECONOMY

To achieve systemic change within the retail industry, actors on three different levels need to buy in on the intended change. These are policymakers, companies and consumers. Regarding sustainability in general, there has long been reluctancy from companies and policymakers to take significant action, even though large groups of citizens have frequently expressed their discontent with the lack of sustainable actions.

The last few years have seen some interesting developments within sustainability from a policy perspective. Ambitious intergovernmental agreements like the Paris Agreement and the European Green Deal have had ripple effects affecting legislation on national levels, leading to several new policies throughout the world. The 2022 US' climate law named the Inflation Reduction Act aimed at achieving a transition towards a greener energy system by changing the financial incentives for companies and consumers. The move has been successful in increasing demand for green energy production and consumption in the US, proving the potential to achieve positive change on the policy level. The same trend of top-down action can be seen within the movement towards a circular economy, with the EU enacting their Circular Economy Plan in 2015. Since then, a growing number of countries, regions and cities have released strategies, policies and roadmaps aimed at achieving a transition towards a circular economy. These moves are starting to affect businesses, who need to position themselves to successfully adapt to the new regulations. Despite this, there is evidence that the circular economy has yet to make a breakthrough within the minds of most citizens and consumers.

The AI-guided analysis aims to understand more about how policymakers, business and consumers are acting with regards to the circular economy. Therefore, in this chapter, we will investigate how actors on each of the three levels are talking and acting with regards to the circular economy. The aim is to identify and exemplify gaps in within or between the three levels, which need to be bridged to accelerate the transition towards a circular economy.







ANALYSIS

The semantic heatmap was generated using an AI algorithm, which projects the input texts into two dimensions based on the meaning of each text. More similar texts end up closer to each other, while texts that are less similar are separated by a larger distance. The result is a map of thematic clusters, where clusters with larger quantities of related texts take on a warmer color.

Texts about companies and policy initiatives are generally spread out through the whole landscape. The former are somewhat overrepresented in the clusters further to the left, and the latter are overrepresented in the middle and bottom of the landscape. The texts about the consumer perspective are highly concentrated to the top right part of the landscape, which mostly consists of texts about consumer behavior itself.









POLICYMAKERS ARE ENVISIONING A CIRCULAR FUTURE

At the policy level, many cities, regions, states and intergovernmental organizations have recently introduced strategies and legislation aimed at a movement towards a circular economy. The main takeaways from the AI-based research on the policy perspective are described below.

"Policy changes in circularity and sustainability right now, are helping to level the playing field while supporting the changes needed to impact the environment "

- Tricia Carey

EU IN THE POLICY DRIVER'S SEAT

With legislative power over the world's third biggest aggregated economy, the EU is one of the key players aiming at achieving circularity through policymaking. The Circular Economy Action Plan, launched in 2015 and updated in 2020, is guiding their transition towards a circular economy. The action plan introduces comprehensive measures within several different sectors with the purpose of improving the level of circularity within the union. In fact, it explicitly states their aim to lead global efforts on circular economy.

The new Circular Economy Action Plan presents measures to:

• Make sustainable products the norm in the EU ; [...]

- Empower consumers and public buyers ;
- Lead global efforts on circular economy.
- European Commission

With their efforts, the EU has the possibility to achieve significant changes across several industries. The proposal for a new Ecodesign for Sustainable Products Regulation aims to set requirements on performance and information for most physical goods on the EU market. This would include, but not be limited to, requirements on product durability, reusability, reparability and recyclability.

In 2022, the EU adopted the Strategy for Sustainable and Circular Textiles, which is expected to have a big impact on which clothes will be allowed on the market in the future. It aims to make all textiles on the EU market durable, recyclable and made from recycled fibres. It also aims to make reuse and repair services profitable and widely available, while making producers responsible for their products during the entire lifecycle.

Existing EU legislation forces the member states to set up separate collection of textile waste as of 2025. Member countries are getting ready for this change, with some having started to legislate accordingly. Combined with planned bans on waste shipments, this would likely mean a surge in the supply of textile waste within the EU, allowing for larger scale production of recycled textiles.

The union has also proposed a Right to Repair policy, with the purpose of prolonging the life of consumer goods. If it becomes law, this would mean an obligation for retailers to offer reparations of their sold goods, even after the warranty is expired. Initially, this policy is aimed at electronics, but could be widened to other consumer goods in the future.

"Among success stories the EU energy labels have been successful at keeping the pressure up on innovation, with scores over time being downgraded forcing everyone to keep making improvements. We now see a similar arena taking shape with the right to repair. Things are definitely moving forward"

- Dr. Annette Cerulli-Harms

INDIVIDUAL COUNTRIES BRING INTERESTING INITIATIVES

It is not just the EU as a whole who are pushing the circularity limits on the policy level. Within the union, member countries like France are moving ahead. In 2020, France passed the Anti-Waste and Circular Economy Law. The law bans businesses from selling single-use plastics, prohibits fast-food restaurants from using disposable tableware for onsite customers, and bans the destruction of unsold consumer products. France has also started a repair fund, which uses tax money to pay consumers to repair devices that are no longer covered by warranty.

From April 1, the French will have to get used to receiving their receipt in a dematerialized version. Or to ask to print it if they want to keep these little white pieces of paper. The end of the systematic printing of receipts, included in the anti-waste law for the circular economy (AGEC) of 2020, will come into force on that date.

- News in France

The Netherlands is another EU member with high circular ambitions. They are set to become the second European country, after France, to implement Extended Producer Responsibility (EPR) laws. These aim to put pressure on companies to take responsibility for their products during their entire lifecycle, meaning businesses have to bear the costs of the negative externalities caused by their products, rather than putting the burden on society. The objective is to have 50% of textiles recycled or prepared for reuse by 2025, and 75% by 2030, and producers will have to report their progress annually.

Looking outside the EU, Scotland is an example of a nation trying to be at the forefront of circular development, having named Lorna Slater as their first Minister for Green Skills, Circular Economy and Biodiversity in 2021. Scotland has introduced a moratorium on constructing new waste incinerators, in order to keep

materials in use for a longer time. They are also preparing to roll out a deposit-return scheme for beverage containers, similar to what is already in place in other Northern European countries. The UK introduced a plastic packaging tax in 2022, penalizing manufacturers and importers of plastic made will less than 30% recycled materials.

China, Canada and Chile are among the non-European countries that are working towards implementing a circular economy. China takes support in their 14th Five-Year Plan for Circular Economy Development to build infrastructure for circular recycling and production. Canada has launched A National Strategy to Encourage Remanufacturing and Other Value-Retention Processes, while Chile has implemented an ambitious circular economy roadmap after a collaborative process with several different stakeholders.

UNITED STATES PUSH GREEN ENERGY, FALL BEHIND ON CIRCULARITY

Notable is that the US, who in 2022 passed the Inflation Reduction Act, a law making them one of the most attractive countries for producing green technology, are falling somewhat behind in the circular transition. Despite this, it doesn't include a single mention of circularity.

At the federal level, a National Recycling Strategy was released in 2021, considered to be step one in a series to build a circular economy. The next step is another strategy aimed at combatting plastic littering, a document which is currently under development. These are needed, as the country is struggling with recycling. Studies have found that the most successful US states have recycling rates at around 50% for target materials, compared to 80-90% in European states like Belgium, Spain and the Netherlands.

The more ambitious circular policy developments in the country are mainly concentrated to a few states. Six US states have enacted EPR laws to improve recycling rates, but none of them goes much further than to cover packaging, paper and single-use food serviceware. New York became the first state in the country to pass a "right to repair" law in late 2022, aimed at facilitating the reparation of digital tools. However, critics have called it watered down because of successful lobbying efforts by the industry. The United States recognizes that MSW recycling is one contribution to a circular economy approach, but it is a critical first step since it serves as a key mechanism for returning materials to the supply chain.

- US National Recycling Strategy

GLOBAL CIRCULAR ALLIANCES FORM

On the highest international level, in 2022, the UN facilitated an agreement between 175 nations to develop a global agreement to end plastic pollution. The agreement established a committee that aims to draft a legally binding international document by 2024, regulating the usage of plastics to avoid further pollution, and encouraging circular practices like reusing and recycling.

2021 saw the launch of the Global Alliance on Circular Economy and Resource Efficiency, consisting of member countries from all continents, with the purpose of promoting and improving the circular economy across the world. Similar alliances have been created on a more regional level, with examples like the African Circular Economy Alliance and the Latin America and the Caribbean Circular Economy Coalition.





Bringing together governments and relevant networks and organizations, GACERE aims to provide the global impetus for initiatives related to the circular economy transition, resource efficiency and sustainable consumption and production, building on efforts being deployed internationally.

- European Commission

Three key takeaways

- The EU is seeking to become a circular economy leader, aiming to achieve circular and sustainable production through legislation
- US has prioritized green energy policies, but fall behind on circular policy development
- Circular economy actions are going global, with developing countries from all continents joining worldwide alliances

"The Inflation Reduction Act is not fully felt yet by American firms [as of April 2023]. European companies are somewhat ahead with their transition roadmaps, likely due to the Green Deal that was passed earlier than the IRA"

- Tricia Carey





COMPANIES SEE MORE CIRCULAR BUSINESS OPPORTUNITIES

Circularity has already become a hot topic for businesses across the world, and many like to present themselves as being at the forefront in the development towards a circular economy. As in the policy case, the move towards a circular economy is seen across several different industries, where the fashion and packaging sectors are two that stand out from the news media scanning.

PACKAGING IN FOCUS AMONG FAST MOVING CONSUMER GOODS COMPANIES

The biggest global retail companies all seem to have their own goals of becoming more circular during the years and decades ahead. This includes giants like IKEA, H&M, Walmart, Target, Coca Cola, L'Oreal, Nestlé and Colgate-Palmolive. Companies within the fast-moving consumer goods (FMCG) industry, such as the latter four, are focusing on waste reduction initiatives. This is very much needed as the big FMCG companies are known for contributing to plastic pollution worldwide. These actors mainly emphasize their aim to improve the recyclability of their packaging, switch to materials other than plastic, and increase the amount of recycled materials in their packaging.

Coca Cola has achieved some progress during recent years, claiming that over 90% of their packaging is now recyclable. During 2022, the company made a few packaging changes aimed at increasing the amount of recycled packaging, which were received with mixed feelings. These changes included replacing the green Sprite bottle with a transparent one, and launching attached bottle caps for several of their brands. Despite their packaging changes, Coca Cola are struggling to make sure their products end up in recycling bins, as they have consistently been named the world's worst plastic polluter.

Colgate launched their first recyclable toothpaste tube in 2022, claimed to be the world's first of its kind. Mentos have chosen to replace their plastic gum packaging with a paper tube, in order to reduce plastics and improve recyclability. Nestlé are together with a few other actors trialing a solution made by German startup circolution. The products are sold in durable steel packaging, which can be returned to stores as a part of Germany's already existing deposit return scheme, and be reused up to 50 times.

Microsoft, Nestlé, PepsiCo, SK Group, Starbucks and Unilever are all joining renewable energy company Brookfield Renewable as investors in Circular services, with the commitment reaching nearly a billion dollars. [...] The company owns and operates facilities across the US and is seeking to help local authorities and businesses reduce costs associated with landfill disposal while ensuring materials are recycled and reused in the domestic supply chain.

- Packaging Gateway



RESALE IS BOOMING AS COMPANIES SEE CIRCULAR BUSINESS OPPORTUNITIES

Unlike most FMCG companies, businesses producing durable consumer goods have the possibility to go further to improve the circularity of their products and packaging. The potential for reusability of such products, combined with technological advancements, has also paved the way for new products, materials and business models. Resale, rental, repair and recycling are some of the main ways in which durable consumer goods companies are aiming to become more circular.

In fashion, circular principles are increasingly being adopted by actors across the industry, evidenced by an overall improved score in Kearney's Circular Fashion Index in their 2022 report compared to two years earlier. Despite the improvement, the report highlights that the industry still is a long way from being circular.

Fashion resale has boomed over the last few years, with new companies entering the market and attracting consumers. Resale business models mainly takes two forms; business-to-consumer (B2C), such as Poshmark and Vestiaire Collective, or peer-to-peer (P2P), such as ThredUP and Sellpy. Startups within secondhand retail are attracting more and more investments, receiving record levels of funding during 2022. Poshmark was acquired by the Korean tech company Naver for \$1.2 billion in early 2023.

The success of new resale platforms has increasingly forced established retailers to act, leading to something of a resale revolution. In 2022, 124 brands offered their own resale programs, up from just nine in 2020. Even companies like Zara and Shein, commonly described as fast fashion, recently launched their own resale platforms, something that was received with mixed feelings in news media. Companies are not necessarily moving towards circular practices because of their inherent wish to make the world a better place. Rather, reports show that the top reason for retailers to get into resale was to acquire more customers.

Both Zara and Shein are launching themselves into second-hand sales. The two biggest fast-fashion players are thus responding to the demand for a more sustainable fashion sector, but are also picking up on a market that may become bigger than their own industry.

- RetailDetail EU



As with resale, the consumer goods sector is seeing an increasing number of companies working with rentals, both through P2P and B2C business models. By Rotation and Rent the Runway are examples of fashion rental platforms. Fashion rentals have also spread to more established actors, with H&M offering an online rental platform, as well as specific rental sections in flagship stores. Services like Homebound provide furniture rentals, giving people the opportunity to rent beds, couches and tables, to prevent unnecessary purchases when moving between homes.

Companies are also increasingly adopting the circular practice of reparation, to prolong the life of their products. Offering repairs and warranties has recently become common practice within luxury fashion. Since late 2022, Bottega Veneta offers a lifetime warranty for their bags, with unlimited refresh and repair for owners. Fast fashion is also taking after in this regard as Uniqlo have started offering customers to repair, remake or donate their clothes at certain UK locations.

Repairs are becoming more important also for electronics, as Fairphone and Nokia are releasing smartphones that are specifically made to be repairable by the consumers themselves. Apple has launched a Self Service Repair program in the US and eight European countries, enabling consumers to buy spare parts in order to repair their devices.

[...] as the fashion industry becomes more cognizant of its environmental impact, more brands are offering repairs as a cost-effective way to extend the life of garments. There's tons of interest in the industry: Major brands like Patagonia and Arc'teryx have opened repair centers, and repair-focused startups like The Restory have raised millions of dollars in funding. Even fast fashion brands have started to offer repairs. Zara announced the launch of a new repair service last Friday and Uniglo opened a repair center in New York in January.



COMPANIES INCREASINGLY INVEST IN RECYCLING, AS WASTE GOES FROM UNDESIRED TO VALUABLE

The enormous amounts of waste in society presents an opportunity for new and existing actors to achieve profit and change with the right business model. Today's system often favors the old take-make-waste mindset, evident from the widespread destruction of returned goods. At the same time, these companies prepare for the future by funding companies developing recycled materials.

Several of the big fashion companies are intensifying their efforts to source recycled materials, and try to innovate using new materials and design processes. In early 2023, H&M teamed up with German waste management company Remondis to create the joint venture Looper Textile Co, with the purpose of collecting, sorting and selling used and unwanted garments and textiles. H&M also partly owns Renewcell, who produces Circulose, a material made from textile waste. Patagonia, Zalando and Inditex are a few of the fashion retailers who have invested in Circ, another company making used clothes into raw textiles. Inditex is one of the retailers active in Spain that have joined forces to create the Association for the Management of Textile Waste, with the purpose of collaborating to promote textile recycling, in order to comply with upcoming legislation.

Other companies see potential value in other materials. Culthread is a clothing company who in 2023 introduced coffee-cycled vegan leather, a faux leather produced by combining coffee grounds and recycled plastic bottles. Latvian start-up KoffeCo also upcycle coffee grounds into several different products, such as logs, charcoal, tableware and oils. The company ChopValue collects disposable chopsticks that would otherwise be incinerated, before upcycling them into furniture.

On the road to reducing virgin plastics, innovations turning waste into packaging could play a big role. The startup S.Lab won the 2023 Green Alley Award for their innovative packaging made of mycelium and agricultural waste, which aims to replace non-recyclable plastics like Expanded Polystyrene. On April 21, Renewcell was selected as the winner of the category Sustainable Textile Innovation in the annual Drapers' Sustainable Fashion Awards. Drapers stressed that Circulose® is already in use of fashion brands and that the potential for positive impact on the industry is huge.

- The Tampa News



CIRCULARITY AND SUSTAINABILITY IMPORTANT FOR COMMUNICATION, BUT COMES WITH RISK

Looking at the word cloud with overrepresented words among the company-related news articles, it is striking how companies' communication about circularity is defined by positive sentiment. The road forward is generally described as exciting and promising rather than difficult and cumbersome. When communicating around resale items and initiatives, companies are largely moving away from wording with more negative connotations, like "used" and "secondhand". Instead, they seemingly prefer descriptions like "pre-owned" or "pre-loved". Names of companies' buyback and resale programs include Like New, Worn Wear, Re/Supply, Revive and Forever.

It is also clear that companies mainly communicate about the circular economy in close connection with sustainability, as the word "sustainability" occurs more frequently than the word "circular" in the data. This is despite the fact that "circular economy" was one of the keywords used in the data collection.

As with sustainability in general, communication efforts on the subject comes with the risk of being accused of greenwashing, as several companies have found out. H&M was sued during 2022 after launching their "Conscious Choice" products, accused of false and misleading sustainability marketing. Zara has also come under fire after introducing circular collections.

In 2022, [Zara] introduced a limited-edition line of "sustainable clothing" made from polyester generated from captured carbon emissions. However, the brand has been criticised as still promotes the concept of overproduction and over-buying, which critics say cancels out these efforts.

- Capital Monitor

Three key takeaways

- Companies within several industries are starting to see business potential in creating more circular products and services
- Businesses are feeling the need to adapt their business models, to attract customers and to prepare for new and coming policies
- Many companies seem to see emphasizing circularity as a good communications strategy, but risk being accused of greenwashing







CONSUMERS IN THE BACK SEAT OF THE CIRCULAR TRANSITION

Even if a sizable amount of consumers care about shopping sustainably, there is evidence that the concept of circularity is not yet rooted within their minds. However, many are willing to act more according to circular principles as soon as certain barriers are removed.

LOW CIRCULAR ECONOMY KNOW-LEDGE AMONG CONSUMERS

Even though circularity is commonly discussed by policymakers and companies, the circular economy is clearly not a well-established concept with consumers when named as such. One survey found that almost 9 in 10 adults in the UK don't know what a circular economy is. Another study found that the same goes for three quarters of Australians. A new survey of over 2,000 people has revealed that 87% of UK adults are unaware of what the circular economy is, showing a lack of understanding around one of the most important consumer behaviours that can help reduce carbon emissions.

Circular Online

The lack of knowledge and usage of the term "circular economy" among consumers is also evident on Reddit. Comparing subreddits related to the circular economy, the ones used for this analysis, makes this even clearer. There are two subreddits specifically aimed at discussing matters related to the circular economy, both being small with low levels of activity. The bigger of the two has 3,000 members and is updated just a few times each month. This can be compared with the subreddit "r/ZeroWaste", which has content in line with circular principles, while boasting over a million members.



OUTSIDE EFFORTS NEEDED TO CHANGE CONSUMER BEHAVIOR

Even if the majority of people are not aware of the term "circular economy", this does not mean that they are unknowing of, or uninterested in practices that are in line with the underlying principles of circularity. Rather, there is evidence that the opposite is true. 84% of people globally consider recycling to be extremely or very important. The previously mentioned Australian study found that two thirds embraced circular principles when the concept was explained.

However, even if consumers are mostly positive towards circular products and packaging, their actions will not necessarily align with their beliefs. Consumers are frequently incentivized to act in a non-circular manner, because that action is cheaper or more convenient. A Dutch government report shows that most citizens are willing to act more circular, as long as it is not inconvenient. 1 in 5 Western Europeans and 28% of North Americans seeing inconvenience as the main barrier to recycling.

Some consumers also find that social media is making circular actions more difficult to achieve, as a survey found that almost half of UK adults agree that social media encourages them to make unnecessary purchases, with 1 in 4 ending up regretting their purchases. I notice I am more encouraged to floss when I have a box of flossers in my purse or near me when I need [it. The] issue is they are just a lot of single use plastics. I would possibly recycle them but my apartment building does not accept recycling services and there is nowhere near me I can drop off recyclables. The other option would be to use picks that are made from a portion of recycled material. Is there any low waste alternative to this?

- Reddit user on r/ZeroWaste

Book recommendations to help change one's relationship with stuff/consumerism?

[...] Realizing I purchase (and then hold onto!) a lot of *junk*. [...] Instead of buying fewer, nicer things, the current state of my house suggests I tend to opt for a ton of cheap junk. Considering some mild home reno stuff, and I feel myself gravitating toward the cheap and easy (and worse) solutions. Anyone have any book recommendations that could help change my relationship with consumerism, excess, value-purchasing, and/ or *stuff* more generally? Thanks!

- Reddit user on r/BuyltForLife





VALUE STILL MOST IMPORTANT IN CONSUMERS' MINDS

Another potential roadblock is pricing, as surveys show consumers are generally not willing to pay much of a premium for circular products. When Colgate released their new recyclable toothpaste tube, their market research showed that consumers were not willing to bear the additional cost. Similarly, a report from 2023 shows that US consumers' number one spend motivator is value. Another showed that consumers consider price as the most important factor when making sustainable purchases, way ahead of materials used.

This indicates that circular products will not reach the mainstream consumer unless they are reasonably priced. Until there are better practices in place for taking care of waste and upcycling it into new consumer products, consumers will in many cases have to pay a premium from new products made from recycled materials, compared to products made from virgin materials. The good news is that, as touched upon in our last consumer report "Sustainable Mindsets", sustainable and circular shopping does not necessarily come with a higher price tag. A survey of Australian consumers showed that almost half of people who shop secondhand do so for economic reasons, with just 8% claiming they do it to prolong the life of the products. In times of inflation, the circular economy has the potential to gain traction, as consumers look for more budget-oriented shopping.

Thrifting is one of the topics frequently discussed by Redditors, as part of the secondhand shopping trend that has been growing quickly the last few years. In line with the previously mentioned surveys, the financial aspect of circular behavior is prevalent in the discussions, as the words "cheap" and "expensive" are both among the most overrepresented words in the consumer data.





Usually, price rules everything when shopping for second-hand items. Often, valuable items are found for a bargain or at negotiated prices. Of the respondents that currently buy second-hand products, 47% said the reason for buying second-hand was a way to save money. A further 12% of survey-takers also indicated financial reasons, saying they can't afford the original price of some products. Only 11% of respondents said that they choose to buy second-hand products to promote sustainability, and a further 8% because they are interested in trying to extend the life cycle of existing products.

- GetApp

Sustainable products are too expensive I have been trying to change my life style to minimize waste so I went to local sustainability stores a couple of days ago to find out what I can get from there. [...] But when I compared prices, their prices were a lot higher than Costco. If the differences are minimal, I'm more than happy to get stuff from there, but I am having a hard time convincing myself to pay 50-100% more for items I can get cheaper at Costco. [...] At the same time, I feel bad buying a brand new shampoo with a new plastic container when I can get a refill on my old shampoo container.

- Reddit user on r/ZeroWaste



SOCIAL MEDIA DISCUSSIONS FOCUSED ON OWN CONSUMPTION, NOT SYSTEMIC CHANGE

The texts from Reddit display the thoughts and actions of individuals who are highly engaged in circular activities, or at least engaged enough to share their thoughts online. The analysis shows that discussions tend to be more focused around small magnitude actions on a personal level, rather than seeking change on a higher level.

Many turn to online forums to ask for or share advice on where to shop ethically, how to prolong the life of their items, or how to repurpose or upcycle them. As with companies, consumers rarely talk about their actions being "circular", but rather use terms like "sustainable" or "ethical".

Hair dryer alternatives?

My hair dryer that I'd had since high school finally died last month. I've been loath to buy a new one since I use it so infrequently, but still it is inconvenient sometimes especially in the winter if I shower in the morning and have to go outside in the cold while my hair is still wet. Any ideas on low/zero waste alternatives to a hair dryer?

- Reddit user on r/ZeroWaste

Extending the life of my clothing

A big part of sustainable/ethical fashion for me is to be conscious of the life cycle of my current wardrobe. I try to extend the life of each of my pieces by 1. washing less 2. air drying 3. upcycling 4. making alterations Does anyone have any other suggestions on how I can take care of my clothes and extend their life??

- Reddit user on r/ethicalfashion

While less sustainability-oriented consumers are not willing to pay a premium for circular products, others are, even on the secondhand market. The Reddit discussions show that some are willing to pay higher prices on resale platforms, in order to avoid buying new products. As fast fashion products are becoming more prevalent on secondhand platforms, some find it is becoming increasingly difficult to navigate the resale market. Even though buying resale fast fashion products might be a circular action, some consumers are struggling to judge if it can be considered sustainable or ethical.

Anyone have thoughts on purchasing fast fashion brands from Poshmark? There's a dress I love that is a Shein dress. It's \$10. It is also on Poshmark for \$37. [...] I haven't quite been able to pull the trigger and purchase it because paying triple for a dress that may ultimately just be supporting fast fashion at a higher price...feels sticky and kind of ridiculous to me.

- Reddit user on r/ethicalfashion

I use Poshmark a lot. It's been pretty saturated with fast fashion items, so maybe Vestaire would be a good place to explore since they are cracking down on that.

- Reddit user on r/ethicalfashion

Is it still considered unethical if you buy fast fashion secondhand, considering no additional labor was put in to create it?

- Reddit user on r/ethicalfashion

Three key takeaways

- Consumers largely lack knowledge about the term "circular economy", but many participate in it anyway
- Consumers are generally supportive of circular practices, but unwilling to sacrifice much in terms of money or comfort
- Discussions on Reddit forums are mainly focused around smaller individual circular efforts, rather than collectively trying to influence on a larger scale





HOW WE DID IT

The AI-guided analysis was carried out using the text analysis software Dcipher Analytics.

- I. To gather data on the policy level, 48 relevant English-language strategic documents from different cities, regions, countries and the EU were identified and compiled into a dataset. In addition, 149,900 English-language news articles that matched the keyword criteria illustrated below were downloaded, aimed at catching how news media cover circular economy policy across the world.
- 2. To investigate how companies are working towards a circular economy, we downloaded 566,416 English-language news articles that matched the keyword criteria illustrated below.
- **3.** The consumer perspective was covered by manually identifying ten subreddits relevant to the circular economy, and downloading the 1,000 hottest posts along with their comments for each. The ten subreddits are listed below. This was complemented by 5,233 English-language news articles that matched the criteria illustrated below, aimed at finding surveys on consumer preferences tied to the circular economy.
- **4.** The datasets were cleaned, e.g. by removing duplicates.
- 5. The texts were each tagged with one of three labels depending on which of the perspective they represent: policy, companies or consumers.
- 6. The texts were split into paragraphs, and texts considered too short to contribute (less than 20 words) were removed.
- 7. The paragraphs were vectorized, before being projected in two dimensions, which resulted in a preliminary 'heatmap' or 'text landscape'.
- 8. The text landscape was analyzed manually, and paragraphs deemed not relevant were filtered out.
- **9.** The remaining paragraphs were again vectorized and projected into two dimensions, resulting in the text landscape illustrated in the report.
- IO. The text landscape was analyzed manually in order to identify the meaning behind the different topical clusters, and to spot overrepresented clusters for each of the three levels.
- II. Automatic topic detection was carried out to further identify relevant topics within the data.
- I2. The degree to which each word is overrepresented among texts from each of the three levels was calculated and illustrated using word clouds, with font sizes corresponding to the degree of overrepresentation.



SOURCES IN THE AI OVERVIEW

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REPORT LAYOUT

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Science Park Borås and Kairos Future hope that this report can become one of the tools for taking steps in the direction of increased circularity.

The gaps and challenges are large and in a globalized world, the transition from linear to circular flows is a massive challenge. But the planetary boundaries require us to act. And for those who do so in a socially responsible way and with a sustainable business model, there is - we believe - much to gain.







European Union European Regional Development Fund