



Deloitte Point of View

A Circular Transition

The topic of Circular Economy (CE), or a closed-loop system aimed at minimising resource consumption and loss, features increasingly among today's discussions on sustainability programmes. Indeed, political agendas such as the EU Green Deal include specific provisions for a Circular Europe, setting priority targets for waste recapture and recycling.¹ Also, consumers are placing increasing importance on the content of their products, frequently favouring those with recycled content.

Nonetheless, change agents within organisations often fall short of unlocking the full benefits from their sustainability programmes by applying a narrow scope for their closed loop systems. The transition to a CE includes a broader range of possibilities and applications than recycling alone. And while the transition may require contribution and buy-in from more stakeholders than a linear economy alone, the benefits can likewise be just as diverse with a successful implementation.



More than just recycling

The quest for sustainable development has brought forward a broad range of tools, methods and frameworks – such as the Triple Bottom Line, Ecological Footprint Analysis, the Genuine Progress Indicator – that help define, measure and implement sustainability on a micro, meso and macro level. Circular Economy has emerged as an approach to counter environmental challenges, contributing to the achievement of the SDGs.²

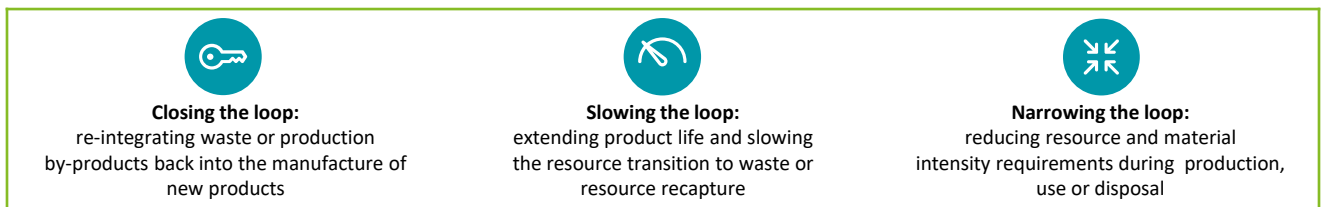
Part of the appeal of CE stems from its potential to create synergies between environmental and economic development goals;³ initiating a regenerative industrial transformation toward sustainable production and consumption.⁴ The Ellen MacArthur Foundation (EMF) estimates that circular economy activities may contribute as much as US\$ 700 million in annual material cost savings to consumer goods production, as well as a 48% reduction of carbon dioxide emissions by 2030.⁵ The Circularity Gap Report 2020 suggests that today's economy is not going beyond a minor 8.6% of being circular.⁶

The EU Circular Economy Action Plan (2020) is part of the European Green Deal and Europe’s agenda for sustainable growth. It introduces legislative and non-legislative measures promoting a circular economy along the entire product life cycle to ensure that resources are kept in the EU economy for as long as possible.

While the underlying principles are not new, Circular Economy only somewhat recently entered mainstream practice and academia. Today, CE has become a guiding principle in many countries’ policies – including the EU’s Circular Economy Action Plan – and has been the focus of business advocacy bodies such as the Ellen MacArthur Foundation. And while there is as of yet no universally accepted definition on CE, the following is comprehensive and clear at the same time:

“A circular economy describes an economic system that is based on business models which replace the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes, thus operating at the micro level (products, companies, consumers), meso level (eco-industrial parks) and macro level (city, region, nation and beyond), with the aim to accomplish sustainable development, which implies creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations⁷.”

A common misconception is that CE centres almost exclusively on recapturing resources through recycling and other end-of-life activities, which would otherwise be preferable to a linear “take-make-waste” economy. However, as a concept, Circular Economy’s broader focus is on keeping resources in the product lifecycle at their highest value for as long as possible which can include any of the following resource economy transformations⁸:



Far from being a simple departure from the traditional linear economy for resources, there is a range of value retention activities described in the so-called R-hierarchy, where operationalisation principles are ranked according to their desirability. Studies even suggest that up to 80% of a product’s circularity may already be determined at its design stage⁹. Transitioning to a Circular Economy thus requires fundamental changes to the way materials are sourced, products are designed, produced, sold, used and disposed of.

R hierarchy: Value retention options in a Circular Economy⁹

Value Retention Option	Consumer	Producer
R0: Refuse	<ul style="list-style-type: none"> Choice to buy/consume less Reject packaging waste 	<ul style="list-style-type: none"> No use of hazardous materials (or virgin materials) for products or production processes Production processes designed to avoid waste
R1: Reduce	<ul style="list-style-type: none"> Less frequent use of goods Longer and more careful use of goods 	<ul style="list-style-type: none"> Explicit step in product design: Less material per production unit → dematerialisation Design long-lasting goods
R2: Resell/ Re-use	<ul style="list-style-type: none"> Buying second-hand goods Re-selling unused products Consumer-to-consumer auctions 	<ul style="list-style-type: none"> Re-use in fabrication Use of existing waste streams as inputs Direct re-use as economic activity via collectors and retailers Multiple uses of (transport) packaging Re-selling of unused, unsold products or products with slight defects (i.e., packaging)

R hierarchy: Value retention options in a Circular Economy¹⁰

Value Retention Option	Consumer	Producer
R3: Repair	<ul style="list-style-type: none"> Repair by consumer at their place or a 'repair café' Repair by a third-party company (organized by consumer) 	<ul style="list-style-type: none"> Enable (easy) repair and maintenance of goods through product design Collect defected products in repair centres controlled by the manufacturer or a third party Distinguish planned repair as a part of a long-term maintenance plan from ad-hoc repair Use of modular designs, facilitate disassembly
R4: Refurbish	n/a	<ul style="list-style-type: none"> Replacement or repair of components with overall structure still intact, resulting in an improved product quality Use of modular designs, facilitate disassembly
R5: Remanufacture	n/a	<ul style="list-style-type: none"> Disassembly of overall structure, checking, cleaning and potentially repairing components Retention of original product quality Use of modular designs, facilitate disassembly
R6: Repurpose	n/a	<ul style="list-style-type: none"> Use of discarded components adapted for another function
R7: Recycle	<ul style="list-style-type: none"> Correct disposal of goods: separate waste streams/ materials 	<ul style="list-style-type: none"> Processing streams of post-consumer products Ensure further use of recycled raw materials (own use, brokerage) Use of modular designs
R8: Recover	n/a	<ul style="list-style-type: none"> Capturing energy embodied in waste (incineration, use of biomass)
R9: Re-mine	n/a	<ul style="list-style-type: none"> Retrieval of materials in landfills, urban mining/ landfill mining

Table 1 The R hierarchy is a widely used framework to rank value retention options. Different versions with varying granularity are in use, with many of the Rs being conceptually related or even overlapping. Depending on the value retention option, there is a consumer and a manufacturer perspective. For options like recycling, there is even a potential governmental perspective to be considered.

Yet, despite its elegance as a solution in addressing modern sustainability challenges, closing resource loops often entails greater amounts of planning and coordination to be successful. A well-working Circular Economy means thinking in systems and loops. This requires actors within supply networks to adopt and maintain more collaborative mind-sets, ensuring resource recapture and reintegration. No matter the internal support, a transformation cannot be accomplished in isolation and would require careful consideration and coordination from design through execution.

Rethinking or adapting business models

Organisations can design entirely new initiatives – or calibrate existing design and operations – to address their individual sustainability objectives by leveraging circular business model insights. New circular initiatives are frequently derived from the value retention options outlined above, including care and repair models, used product resale, remanufacturing, or dematerialization. Select business model adaptations can include changes in sourcing strategies, design modularity and even shifting from product to service.

The choice for the most effective model depends on the manufacturer's particular footprint. Companies should not only decide which of the value retention options are applicable and feasible for their business, but also prioritise them based on economic and environmental impact.

Similarly, manufacturing companies are increasingly considering a shift from products to services, i.e. via sharing platforms, as a viable alternative for revenue growth. Common office examples can include a shift from purchasing to leasing equipment such as printers from manufacturers. Returned equipment is repaired rather than phased out and more likely to return to the manufacturer for recycling at the end of its life.

Pay-per-use models are attractive since they do not require a large upfront investment and incentivize efficient resource use. At the same time, they ensure a continuous flow of revenue for the manufacturer (relative to traditional buy-sell models). Such an example can also be scaled up from small to medium sized equipment up to large, industrial manufacturers who could lease rather than sell to their clients.



Benefits beyond resource preservation

When considering the transition to a CE programme, change agents can sometimes overlook critical benefits to their organisation. The benefits from closing loops in a product's supply or value chain can frequently address internal and external compliance requirements. In some cases, the transition to a closed loop system can even result in the creation of new and exciting revenue opportunities for the organisation.

The following section provides a sample of the potential benefits to an organisation when considering a shift to a Circular Economy:

Cost reduction and efficiency gains

- **Material cost reduction:** reduction of material costs through decreased volume requirements, e.g. through more efficient use of materials or use of existing waste streams (internal or external)
- **Waste reduction:** ability to repurpose own waste streams leads to lower waste management costs
- **Upcycling:** use recycled material as an additional and lower cost inflow
- **Process optimisation:** inspired by consideration for closed loop operational designs
- **Energy cost reduction:** resources input = output, closed systems leverage externalities for intake

Externality reduction

- **Pollution and emissions:** reductions positively impacting marketplace reputation and potentially avoiding carbon taxes
- **Resource preservation:** minimise use of non-renewable resources and negative environmental impacts up to actively contributing to regeneration of resources or the environment

Risk reduction

- **Reputational risk minimisation:** address potential exposure to affiliation with un-ethical or unsustainable suppliers
- **Reduced third party risk:** via closer relationship and higher transparency in closed loop ecosystems

Increased enterprise resiliency

- **Greater transparency:** value chain illumination and awareness due to necessary coordination and collaboration in a closed loop ecosystem
- **Closer relationships:** collaborative problem-solving and opportunity development beyond circular economy through supply chain networks
- **Limited commodity dependency:** reduced exposure to commodity market shocks and effects of scarcity of non-renewable resources

Compliance

- **Hard laws:** increasing regional regulatory initiatives (e.g. *EU Green Deal*), Responsible Business initiative (*Switzerland*)
- **Soft laws:** increasing contribution to global governance (e.g. *SDGs; specific goal on circularity*)

Financing

- **Private Equity:** increased investor engagement (esp. private equity) into sustainability related investments, increased environment, social and governance (ESG) grading through the effects of circular value chains
- **Public support:** use of circular solutions by either direct subsidies or indirectly by imposing fees or taxes on non-compliant products

Competitive advantage and new market potential

- **First mover advantage:** use of new business models (e.g. product to service transition); new market potential (e.g. new alternative materials, eco-sustainable products, etc.)
- **Higher margins:** possible due to improved reputation and branding aspects, product/ process innovations, product-service-systems and monetising own waste streams
- **Sustainable income flows:** due to new circular business models that can be hard to imitate by competitors or because of long-term relationships with customers in models relying on use rather than ownership of goods
- **Customer retention and loyalty:** due to new, or adapted business models (e.g. product or asset as a service), increased transparency and perceived interaction at eye-level



Use case: Global implementation of a reverse logistics programme

Overview and client situation

A client in the global consumer electronics industry was faced with the dual challenge of addressing extended producer responsibility (EPR), while simultaneously exploring various quality-related issues concerning product returns. Global markets saw increasing regulations and fees regarding the collection and disposal of returned electronic goods. Meanwhile, the client lacked a standardised returns management and quality inspection system to address growing returns and support new product development cycles.

With Deloitte's support, the client designed and implemented a reverse logistics programme incorporating elements of both product and environmental stewardship. The ultimate ambition of the programme was to reduce returns from customers through detailed failure analysis, while prioritising the company's sustainability and Circular Economy objectives through 100 percent recycling for product returns. By understanding root quality issues through failure analysis on returned products and subsequently recycling them, the client was able to protect its reputation as a responsible stakeholder in the industry.

Deloitte's approach and outcome

Deloitte's philosophy and approach centred on creating a practical solution to address the client's two pressing needs in environmental stewardship and product improvement. In leveraging a new, global reverse logistics design for returns, the team understood that multiple return and inspection flows would be required to ensure global coverage for the programme. As such, the client elected to create multiple regional hubs for returns – shortening return streams for quicker inspection results and disposal. Deloitte oversaw the site selection, control tower design, and KPI reporting and analysis to support the programme's success.

As the client's products expand into new markets and these products return to one of the multiple reverse logistics hubs, new and unique insights are available to support product improvement. The client is now able to access country specific data from regional and country-specific consumer trends and behaviours, driving product design and tailoring for consume preferences. Moreover, the client's global entities who comprise a part of the programme now have a sustainable disposal process where almost all the product is dismantled, separated into material types and then sold to recycling partners.

The programme has yielded additional benefits as well. For instance, from a security perspective, this standardised return flow has reduced the risk of products lost or stolen in transit. Within the process there is the ability to track all products received at the hubs, as well as the outbound tracking before the products enter the dismantling and recycling phase. Further, the programme's success has sparked closer collaboration between the client and its suppliers, who may ultimately feature recycled content from the circular programme into their new products.

Key Takeaway




Reflecting on the program and its outcomes, it is clear that sustainability initiatives should not just make the company "feel good" about compliance and sustainability, but they can also create business and financial value. In this particular case, the data captured at the hubs is valuable for the company to understand their consumer behaviors across countries and regions. This can help shape new product designs for key markets ahead of new product launches. From a manufacturing perspective, the data also helps identify any potential batch faults which ultimately means faster product recall and correction.



Recognised as the world’s leading professional services provider, Deloitte’s **Inspire to Execute** approach toward Circular Economy and Sustainability comprises the broad range of support our team can offer. Our subject matter experts come from across industry with diverse backgrounds to bring best-in-class thought leadership to **Inspire** your team or organisation, while also partnering with you to **Execute** your ambition and bring your goals to life.




Inspire

Before any Circular Economy transformation journey can begin, a change agent or project lead should first focus on inspiring its internal stakeholders. Internal stakeholder alignment and buy-in are critical for the CE journey ahead – providing political and financial support to get the project off the ground. While most of our clients already understand the urgency behind shifting to sustainable business models, they may lack the skills and experience to truly inspire the critical decision-makers within their own organisations. To that end, Deloitte’s Inspire portfolio offers:

 <p>Value chain mapping</p>	<ul style="list-style-type: none"> • Value chain mapping can provide a starting point for leveraging key opportunities within Circular Economy • Understand environmental and social footprint (i.e. resource depletion) and their drivers along the value chain • Map key stakeholders as a basis for potential engagement
 <p>Workshops</p>	<ul style="list-style-type: none"> • Ideation and co-design workshops to stimulate Sustainable and Circular Economy thinking • Identify ways to slow, close or narrow resource loops • Identify opportunities to improve resource retention in collaboration with suppliers or downstream value chain actors • Objective-setting and definition workshop planning in “the art of the possible”
 <p>Business case</p>	<ul style="list-style-type: none"> • Mapping business value drivers to expected benefits from Circular Economy initiatives • Support in “building the case” for resources and implementation buy-in from executive stakeholders • Consider measurement systems to evaluate achieved impact

Execute

Moving beyond the Inspiration phase, teams can sometimes get lost in the details of a project implementation. With Deloitte’s assistance, our clients are able to benefit from world-class project delivery support and subject-matter expertise. We leverage our history in Sustainability and Circular Economy project design and delivery to help your organisation realise its ambition. Deloitte doesn’t just bring standard project management experience, we bring topic specific delivery credentials and support, ready to help you identify obstacles, manage stakeholders and deliver according to your scope and design. And this both on-time and on-budget.

 <p>Pilot and scale up</p>	<ul style="list-style-type: none"> • Thinking big, but starting small: implementing a single use case to prove the opportunity's feasibility • Driving scope expansion to maximise value capture after initial proof of concept
 <p>Reporting and communications</p>	<ul style="list-style-type: none"> • Ensure the right objectives and achievements are communicated to the correct stakeholders • Continuously update and report on project achievements and benefits vs plan
 <p>Refining and optimising</p>	<ul style="list-style-type: none"> • Not stopping at the project's end, continuing to develop and refine performance while maximising value capture • Integrate newest in class and best of breed technologies and processes to ensure the project stays up-to-date

Want to learn more?

Using Deloitte's Inspire to Execute framework, our team of experts can help you to assess your current position and understand your ambitions. This involves a deep dive into your internal and external stakeholder expectations, assessing the most material issues and understanding your broader risks and opportunities.

We then work together with you to jointly define, tailor and shape a Circular Economy strategy and roadmap for your company that not only resonates with your key stakeholders, but also maximises long-term economic, social and environmental value.

Citations

1. European Commission. (2020). First Circular Economy Action Plan. Retrieved from https://ec.europa.eu/environment/circular-economy/first_circular_economy_action_plan.html#:~:text=In%202015%2C%20the%20European%20commission,growth%20and%20generate%20new%20jobs.
2. Deutz, P. (2020). Circular Economy. In A. Kobayashi (Ed.), *International Encyclopedia of Human Geography* (Second Edition) (pp. 193-201). Oxford: Elsevier.
2. Schroeder, P., Anggraeni, K., & Weber, U. (2019). The Relevance of Circular Economy Practices to the Sustainable Development Goals. *Journal of Industrial Ecology*, 23(1), 77-95. doi:10.1111/jiec.12732
3. Masi, D., Day, S., & Godsell, J. (2017). Supply Chain Configurations in the Circular Economy: A Systematic Literature Review (Vol. 9).
4. Korhonen J., Nuur C., Feldmann A., Birkie S.E. (2018). Circular economy as an essentially contested concept. *Journal of Cleaner Production* (Vol 175), 544-552. <https://doi.org/10.1016/j.jclepro.2017.12.111>.
5. Ellen MacArthur Foundation. (2013). Circular Economy Overview. Retrieved from <https://www.ellenmacarthurfoundation.org/circular-economy/overview/concept>.
6. Circularity Gap Report. (2020). Retrieved from <https://www.circularity-gap.world/2020>
7. Kirchherr, J., Reike, D., & Hekkert, M. P. (2017). Conceptualizing the circular economy: An analysis of 114 definitions.
8. Bocken, N. M. P., de Pauw, I., Bakker, C., & van der Grinten, B. (2016). Product design and business model strategies for a circular economy. *Journal of Industrial and Production Engineering*, 33(5), 308-320.
9. Ellen MacArthur Foundation. (2017). What is the Circular Economy. Retrieved from <https://www.ellenmacarthurfoundation.org/circular-economy/what-is-the-circular-economy>
10. Reike, D., Vermeulen, W.J.V. & Witjes, S., 2018. The circular economy: New or Refurbished as CE 3.0? — Exploring Controversies in the Conceptualization of the Circular Economy through a Focus on History and Resource Value Retention Options. *Resources, Conservation and Recycling*, 135, pp.246–264.

Contributing Authors



Marcel Meyer
Partner
marcelmeyer@deloitte.ch



Peter Vickers
Director
pgvickers@deloitte.ch



Gary Bearden
Senior Consultant
gbearden@deloitte.ch



Nina Schmid
Consultant
ntschmid@deloitte.ch



This publication has been written in general terms and we recommend that you obtain professional advice before acting or refraining from action on any of the contents of this publication. Deloitte AG accepts no liability for any loss occasioned to any person acting or refraining from action as a result of any material in this publication.

Deloitte AG is an affiliate of Deloitte NSE LLP, a member firm of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"). DTTL and each of its member firms are legally separate and independent entities. DTTL and Deloitte NSE LLP do not provide services to clients. Please see www.deloitte.com/ch/about to learn more about our global network of member firms.

Deloitte AG is an audit firm recognised and supervised by the Federal Audit Oversight Authority (FAOA) and the Swiss Financial Market Supervisory Authority (FINMA).

© 2021 Deloitte AG. All rights reserved.