REPORT

IN YOUR HANDS: GOING CIRCULAR

Leading with purpose towards a low carbon, resource-efficient economy

To date, most business and government responses to the climate crisis have focused primarily on emissions associated with energy use. This approach, taken on its own, fails to address the hidden carbon impact from the whole lifecycle of the products that we buy and use, from material extraction, to manufacturing, distribution, operation, and disposal.

The Ellen MacArthur Foundation estimates that, while action to reduce energy consumption and decarbonise energy systems could deliver around 55% of the emissions reductions needed to limit global temperature rise to 1.5°C, the remaining 45% must come from transforming how we produce and use products and food[i] addressing emissions embedded in materials and supply chains.

40%

reduction in emissions by 2050 can be achieved by adopting circular economy approaches with the four key materials of cement, steel, plastic and aluminium.[ii]

All businesses are responsible for measuring and reporting indirect emissions across the product lifecycle (scope 3 emissions). Current best practice under the Greenhouse Gas Protocol and Science Based Targets initiative is that scope 3 emissions must be included where they are material, typically defined as 40% or more of total emissions (this threshold remains a common benchmark, though many organisations now include scope 3 regardless due to its significance).

To reduce these lifecycle emissions, organisations need to adopt more effective ways of managing material flows - using fewer resources while still meeting demand. This is where the circular economy can accelerate pathways to lower emissions.

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The Circular Economy is: *"a system designed to maximise the value of products and materials while in use, then to recover and repurpose them at the end of their lives, ultimately eliminating waste."* This approach reduces demand for finite natural resources, lowering carbon and regenerating natural systems.

Using circular economy principles will allow your business to think more holistically about emissions including how these might spread throughout your supply chain. This is also crucial to achieving net zero as research has shown that value chain emissions can comprise more than 90% of a company's total emissions.[iii]

Detailed guidance on how to manage emissions across your value chain can be found here.

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Product lifecycle emissions are defined by the Greenhouse Gas Protocol as: *"All the emissions associated with the production and use of a specific product, from cradle to grave, including emissions from raw materials, manufacture, transport, storage, sale, use and disposal."*

Embodied carbon refers to: *"Carbon emissions associated with materials across their whole lifecycle (excluding operational emissions i.e. from the energy required to use the product or building)."* This term is used primarily in the construction industry.

What are the phases of a product?

Screening the emissions across your value chain will help you identify the most carbon-intensive aspects, as well as opportunities where circular economy principles could lead to a reduction in product lifecycle emissions. Good circular strategies should systematically address all phases of a product or service's lifecycle. The Greenhouse Gas (GHG) Protocol's product lifecycle stages provide a useful framework and include:

Action	Guidance
Take (sourcing materials from nature)	• Products should be designed using renewable or recycled materials wherever possible. • Recycling generally requires significantly less energy than producing virgin materials. For example, recycled steel uses around 60-75% less energy than primary production (International Energy Agency; World Steel Association). Recycling one tonne of plastic can reduce emissions by approximately 1-3 tonnes of CO_2e, depending on the material and process.[iv] • By-products from other industrial processes may be suitable for use as material inputs, avoiding emissions from both waste treatment and virgin material extraction. • Materials sourcing is a major driver of environmental impact: research from the UN Environment Programme shows that resource extraction and processing contribute to around 90% of biodiversity loss and water stress, including deforestation.[v]
Make/ remake (production of products)	• Products should be designed to be long-lasting and durable. Planned obsolescence or poor design leads to premature failure, increased waste, and higher emissions from replacement. • Products should be designed to be easily reparable by their user, through an easy-to-use and fair-priced repair service provided by the manufacturer. This will reduce the temptation for the user to replace a faulty product with a new one and avoid the carbon impact of disposal and creating a new product. • Remanufacturing (see Business Model Design below) is a particularly effective circular economy model with major carbon savings. By remanufacturing their chairs, PwC reduced costs and the carbon footprint of items by around 60%.

Use (of the product)	• The first consideration should be to avoid the need for new products. For example, using existing products which can be adapted for the purpose, or opportunities for multiple users to share a product instead of buying one each. • Wasted utility refers to products which are underused, for example, a car only being driven 5% of the time. Allowing such products to be shared between multiple users would reduce the number of products needing to be manufactured and the carbon emissions which result from that.
Dispose (end-of-life management of products)	• The most common carbon intensive waste streams include food waste, textiles, metallic wastes, equipment, plastics and paper.[vi] Where biodegradable waste ends up in landfill methane is created which is 27 times more potent than CO_2 as a greenhouse gas. • In a perfect circular economy model, there would not be an end-of-life stage in the product lifecycle; all products would instead be continuously reused or repurposed. • To find out more about how to manage end-of-life waste, read Business in the Community's Lifting the Lid on Waste guide.

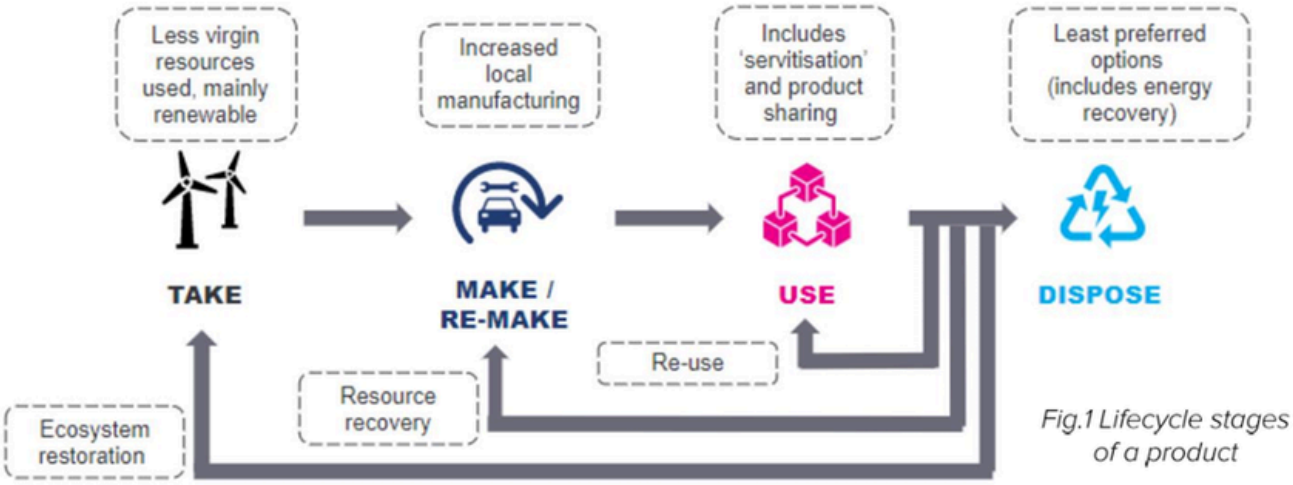

Fig.1 Lifecycle stages of a product

An illustration of the lifecycle phases of a circular economy can be seen in Figure 1 above.

Redesigning your business model

The circular economy model is much more than an approach to environmental sustainability; it redefines how businesses produce and use products and should be considered as a fundamental part of business strategy. There are several approaches to circular business model design, with three key concepts summarised in this section.

Remanufacturing: when a manufacturer (either the original manufacturer or a third party) takes products which would otherwise be considered to be at their end-of-life and returns them to a like-new state so that they can be resold (usually with a warranty) at the same or better quality than the original product. This has substantial material and carbon savings compared to creating a new product from scratch.

Product-as-service or 'servitisation': this model is based on the idea that the customer does not need to own the product to benefit from it. Instead of selling the product, burdening the customer with having to maintain the item and manage it when they no longer need it, items are instead leased on a contract basis, which allows the customer to use the item for as long as they need before it is returned to the supplier.

This allows manufacturers or distributors to retain ownership of the product and to recover it from the customer. This enables reuse, remanufacturing, or the recovery of materials and components which can be made into new products.

As an example, in 2020 John Lewis announced that it would operate a leasing model for home furniture. This was expected to reduce carbon compared with producing and selling new products to each customer. However, reduced emissions were not guaranteed (for example, because of increased transport emissions), so the business model needed to be carefully designed to consider lifecycle carbon impact.[vii]

Product sharing platforms: these seek to move away from each customer owning an underutilised product and instead focus on shared access to a pool of products which are accessed as and when required. Serving the needs of multiple customers with one asset increases the amount it is used while avoiding the need for individual assets to be manufactured for each customer.

This service can be provided by a product manufacturer, an official distributor/retailer, or a third party. Peer-to-peer product sharing provides platforms for members of the public to list products which they own and will let other people use either in exchange for a fee or for them in turn being able to access other people's products. Product sharing platforms may be tech-based, such as Zipcar, or may be low-tech and community-based, such as the Library of Things.

Which model is right for my business?

Changing your business model is not a quick fix and will require you to assess all aspects of your business. The BSI Circular Economy Standard provides guidance for how organisations can select and implement the most appropriate circular business models.

Practical steps to adopt circular approaches

Below we have outlined some practical steps which can be taken to embed circular approaches and lower emissions across the entire lifecycle of a product. Steps have been outlined from the perspective of product manufacturers, product retailers/distributors and product users.

Action	Guidance
Product manufacturer	• Source circular material inputs from lower carbon sources, including by-product streams from other industrial processes, recycled materials and renewable materials. • Speak to recycling companies to find out what actually happens to your products at the end-of-life and what barriers to resource recovery the design of your product creates, consider how your product could be better designed to overcome these barriers, for example, not using composite materials. • Consider how you can design your product to increase its lifespan, for example, improving its reparability.
Product retailer/ distributor	• Use your position as an interface between manufacturers and customers to create a dialogue with suppliers, helping them to identify and adopt circular approaches to design and production, while promoting more circular options to your customers. • Consider how the product is used by the customer and if there are alternatives to selling the product. For example, products such as office carpet, which the customer typically replaces due to changing tastes rather than because the product degrades, might suit a leasing model which will allow you to maintain an ongoing relationship with the customer and prevent waste at end of use. • Products which are infrequently used by the customer might lend themselves to product as service models because infrequent use reduces the need for a customer to own a product and the option of leasing or renting a product becomes much more appealing. Consider if this is a service which you could offer.

Product user	• Scrutinise the need for purchasing a product in the first place. Can your needs be met by better allocation and sharing of products you already own, or by sharing a pool of infrequently used products with neighbouring businesses? • Consider purchasing used or remanufactured products before looking at newly manufactured options. • If you need to buy new, stimulate the market for recycled material by specifying a certain amount of recycled content in tender specifications. • When selecting products, consider the lifetime cost of ownership rather than deciding based on the upfront purchasing cost, this will incentivise the selection of longer lasting products. • When you no longer require a piece of equipment consider opportunities for donating or selling it for reuse or remanufacture. If that is not suitable, ensure that you have a waste management process which optimises recycling (see BITC's Lifting The Lid on Waste guide).

Further guidance

- BITC's Driving Sustainability through Procurement: a guide on how to embed sustainability into procurement processes.
- BITC's Lifting the Lid on Waste: a guide to Recycling, Waste Management and Resource Productivity.
- BITC's Target setting- Getting started on your net-zero journey: a briefing to help organisations create a pathway to accelerate the transition to net- zero.
- Science Based Targets initiative (SBTi) - Value Change in the Value Chain: Best practices in scope 3 Greenhouse Gas Management.
- Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard: guidance on GHG Protocol Corporate Accounting and Reporting Standard.
- Carbon Disclosure Project Supply Chain Programme: a not-for-profit charity running the global disclosure system for, for example, investors and companies to manage their environmental impacts.

Next steps

Our Climate Action Leadership Team convenes leaders from businesses, communities, government and the public sector, to help transform leadership to deliver a future ready economy resilient to social, economic and environmental shocks that are increasing as our planetary life support systems falter. Our goal is to make it easier for businesses and communities to build a future where people and nature thrive, together.

References

Note: All online sources listed below were last accessed on 29 May 2026.

i Ellen MacArthur Foundation (2019), Completing the picture: How the circular economy tackles climate change. Available at: https://www.ellenmacarthurfoundation.org/completing-the-picture

ii Ellen MacArthur Foundation (2019), Completing the picture: How the circular economy tackles climate change. Available at: https://www.ellenmacarthurfoundation.org/completing-the-picture

iii Greenhouse Gas Protocol. FAQs. Available at: https://ghgprotocol.org/calculation-tools-faq

iv European Environment Agency. Available at: https://www.eea.europa.eu/en

v UNEP (2019) Global Resources Outlook 2019: natural resources for the future we want. Available at: https://digitallibrary.un.org/record/4047319?ln=en&v=pdf

vi Zero Waste Scotland Waste (2018) Carbon Metric & Defra Digest of Waste & Recycling Statistics 2018. Available at: Digest of Waste and Resource Statistics - 2018 Edition

vii Tukker (2004) Eight types of product-service system: eight ways to sustainability? Experiences from SusProNet. Available at: https://venturewell.org/wp-content/uploads/Tukker-2004-Business_Strategy_and_the_Environment.pdf

Business in the Community (BITC) champions responsible business as essential for long term economic growth and resilience. We convene, campaign, and consult with business to tackle society's most pressing challenges—from climate change and place-based regeneration to inequality, workplace wellbeing, and inclusive growth.

Founded by His Majesty King Charles III in 1982, BITC has over four decades of experience in engaging business and delivering measurable impact in both business and in communities through evidence-based interventions. As a trusted partner to business and government, BITC convenes leadership, influences policy, and accelerates action—helping shape a future-ready economy that works for everyone.

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