



# Green UP

Topic 2 Circular Economy  
Subtopic 2.1 Introduction to  
Circular economy





## Introduction to Circular economy

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# INTRODUCTION



The circular economy is an economic model that aims to minimize waste and promote sustainable practices throughout the entire lifecycle of products, materials, and resources. Unlike the traditional linear economy, which follows a "take, make, dispose" pattern, the circular economy is designed to keep resources in use for as long as possible, extract maximum value from them during their use, and then recover and regenerate products and materials at the end of their life. Under this subtopic, it is presented the definition, the benefits as well as the principles of the circular economy. Interesting examples of circular economy has been included as well as sections on how to enable consumer choices for a circular economy, how digitalization can help build a circular economy ecosystem and what the EU is doing to become a circular economy.

# Circular economy: definition, importance and benefits

The circular economy: find out what it means, how it benefits you, the environment and our economy.

The European Union produces more than 2.2 billion tonnes of waste every year. It is currently updating its legislation on waste management to promote a shift to a more sustainable model known as the circular economy.

But what exactly does the circular economy mean? And what would be the benefits?



# What is the circular economy?

The circular economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the **life cycle of products is extended**.

In practice, it implies **reducing waste** to a minimum. When a product reaches the end of its life, its materials are kept within the economy wherever possible thanks to recycling. These can be productively used again and again, thereby **creating further value**.

This is a departure from the traditional, *linear* economic model, which is based on a take-make-consume-throw away pattern. This model relies on large quantities of cheap, easily accessible materials and energy.

Also part of this model is planned obsolescence, when a product has been designed to have a limited lifespan to encourage consumers to buy it again. The European Parliament has called for measures to tackle this practice.



# Benefits: why do we need to switch to a circular economy?

## To protect the environment

Reusing and recycling products would slow down the use of natural resources, reduce landscape and habitat disruption and help to limit biodiversity loss.

Another benefit from the circular economy is a reduction in total annual greenhouse gas emissions. According to the European Environment Agency, industrial processes and product use are responsible for 9.10% of greenhouse gas emissions in the EU, while the management of waste accounts for 3.32%.

Creating more efficient and sustainable products from the start would help to reduce energy and resource consumption, as it is estimated that more than 80% of a product's environmental impact is determined during the design phase.

A shift to more reliable products that can be reused, upgraded and repaired would reduce the amount of waste. Packaging is a growing issue and, on average, the average European generates nearly 180 kilos of packaging waste per year. The aim is to tackle excessive packaging and improve its design to promote reuse and recycling.



# Benefits: why do we need to switch to a circular economy?

## **Reduce raw material dependence**

The world's population is growing and with it the demand for raw materials. However, the supply of crucial raw materials is limited.

Finite supplies also means some EU countries are dependent on other countries for their raw materials. According to [Eurostat](#), the EU imports about half of the raw materials it consumes.

The total value of trade (import plus exports) of raw materials between the EU and the rest of the world has almost tripled since 2002, with exports growing faster than imports. Regardless, the EU still imports more than it exports. In 2021, this resulted in a trade deficit of €35.5 billion.

Recycling raw materials mitigates the risks associated with supply, such as price volatility, availability and import dependency.

This especially applies to critical raw materials, needed for the production of technologies that are crucial for achieving climate goals, such as batteries and electric engines.



# Benefits: why do we need to switch to a circular economy?

## **Create jobs and save consumers money**

Moving towards a more circular economy could increase competitiveness, stimulate innovation, boost economic growth and create jobs (700,000 jobs in the EU alone by 2030).

Redesigning materials and products for circular use would also boost innovation across different sectors of the economy.

Consumers will be provided with more durable and innovative products that will increase the quality of life and save them money in the long term.



# What is the EU doing to become a circular economy?

In March 2020, the European Commission presented the circular economy action plan, which aims to promote more sustainable product design, reduce waste and empower consumers, for example by creating a right to repair). There is a focus on resource intensive sectors, such as electronics and ICT, plastics, textiles and construction.

In February 2021, the Parliament adopted a resolution on the new circular economy action plan demanding additional measures to achieve a carbon-neutral, environmentally sustainable, toxic-free and fully circular economy by 2050, including tighter recycling rules and binding targets for materials use and consumption by 2030.

In March 2022, the Commission released the first package of measures to speed up the transition towards a circular economy, as part of the circular economy action plan. The proposals include boosting sustainable products, empowering consumers for the green transition, reviewing construction product regulation, and creating a strategy on sustainable textiles.

In November 2022, the Commission proposed new EU-wide rules on packaging. It aims to reduce packaging waste and improve packaging design, with for example clear labelling to promote reuse and recycling; and calls for a transition to bio-based, biodegradable and compostable plastics.



# Circular economy principles

- 1. Sustainable procurement:** development and implementation of a responsible purchasing policy
- 2. Ecodesign:** process of reducing the environmental impacts of a product or service throughout its life cycle
- 3. Industrial and territorial ecology:** search for eco-industrial synergies at the scale of a business area - the waste of one company can become the resources of another one
- 4. Economics of functionality:** collaborative economy that favors use over possession and thus tends to sell services related to products rather than the products themselves
- 5. Responsible consumption:** rational consumption and choice of products according to social and ecological criteria
- 6. Extending the duration of use:** through repair, reuse and repurpose
- 7. Recycling:** treatment and recovery of the materials contained in collected waste



# Enabling consumer choices for a circular economy



Establishing an EU circular economy calls for a transformation of Europe's production/consumption systems. Production systems respond to and shape consumer demand through the products offered and how they are marketed. Informed consumer choices can potentially shape decisions made by producers upstream and downstream in product supply chains.

These key messages explore how policy can enable more circular economy-consistent consumer behaviour by understanding the factors influencing it.

## Key Messages

- Production systems largely shape consumer demand by defining the types of products placed on the market and through targeted marketing strategies. However, consumer choices when purchasing, using and discarding products can potentially promote circular economy principles by increasing the demand for goods and services that are most consistent with circular economy principles.
- Policies aiming to promote circular economy-consistent decisions by consumers will be most effective if they take account of the factors shaping individual behaviour and nudge consumers towards making choices that favour the greatest circularity.
- The factors affecting consumer behaviour in the context of the circular economy are economic factors, the fit between needs and offering, information, social factors, and individual consumer preferences and beliefs. Current policies mainly aim to give consumers information (e.g. eco-labels) and to a lesser extent to make circular alternatives more economically attractive. Changing social factors and personal preferences by policy measures alone is perceived to be more difficult.
- There are opportunities to explore a range of possible future policy options across different governance levels, including tax breaks and subsidies, legally binding regulations, avoiding greenwashing, making circular options more convenient, and using eco-labels and measures targeting consumers to, for instance, enhance emotional attachment to products.



# Circular economy examples

See the circular economy in action with these case studies from brands, businesses and policy makers.



## Working with nature to make food last longer

Apeel is a company that has come up with an innovative way to eliminate single-use shrink wrap plastic packaging on fresh fruit and veg, while at the same time tackling food waste.

Apeel is a layer of edible, plant-based coating applied to fresh products that mimics and enhances the natural defences of fruit and vegetables. This slows down the two main things that cause spoilage – water loss and oxidation.

## Keeping clothing in use to save us money and reduce waste

Through its managed marketplace, thredUP has created a smarter and easier way to buy and sell secondhand clothes.

## Creating a regenerative economy in the Amazon Forest

Natura is South America's largest cosmetic company. The brand became global when it purchased the Body Shop in 2017, and most recently Avon products, making it one of the largest beauty companies in the world.

*Explore the examples; <https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview>*



# How digitalization can help build a circular economy ecosystem

To create a fully circular business model, digital business ecosystems must be designed to make significant decisions and take action. While companies ratchet up their digital processes, they must simultaneously implement circular business models and use digitalization to create durable, interoperable ecosystems that support circular ambitions and create new opportunities for innovation, differentiation, synergies and jobs. Developing this inherent virtuous circle of economics will produce efficiencies, savings and additional profits.



## Ending our reliance on finite natural resources

The circular economy decouples economic growth and development from the consumption of finite natural resources. It deploys principles and strategies to achieve global climate and environmental goals while increasing competitiveness and profitability. It changes the way we produce and consume to become more resilient, more innovative and more resource efficient and it increases our supply chain flexibility

The global circular economy ensures that the concept of waste is just a comma in history. Before the industrial revolution and mass production, waste almost didn't exist; everything was reused, repaired, and regenerated. In our modern society, we see materials and products that no longer perform their original function as unusable. This practice must be eradicated. If we are to reach global climate goals, while continuing to increase global wealth, we must ensure that the concept of waste is not an integral part of our modern society. Materials and products must maintain their economic value and never become unusable; instead, they should be continuously on a journey towards their next-use stage.



# How digitalization can help build a circular economy ecosystem

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## The circular economy is ecosystem-centric

The most interesting opportunities to innovate and differentiate in a circular economy rest with organizations. Companies that use the circular economy's competitive advantages collaborate with their ecosystem partners to create, capture and deliver sustainable value.

By extending the lifespan of products and parts and benefitting from all usage cycles, companies improve resource efficiency, increase resilience and customer intimacy and create new income sources.

The competitive circular business model operates across organizations and is ecosystem centric. This is compared to the traditional company-centric linear model, where companies primarily focus on up-front product sales to the next in line, do not consider how to create benefits throughout a product's full usage cycle and do not have a business model that incentivises them to extend the lifespan of products.

Ecosystem collaboration is not only an opportunity, it also entails challenges, such as interdependence, transaction costs, power relations and the need for intermediation in the system.

It's worth noting that an outcome of improved circularity across the business ecosystems is the increased visibility afforded by digitalisation and ecosystem transparency. This is especially true in the current era of supply chain fragility.

# How digitalization can help build a circular economy ecosystem

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## Digitalizing the business ecosystem

An efficient business ecosystem can only operate if it is fully digitalized. Digitalization's ability to facilitate business ecosystem collaboration across geographies and organizations is central to the realisation of a global circular economy.

To observe the successful digitalization of the business ecosystem, we need to examine a new set of market leaders that use digital platform models to achieve this position. They have monopolized the interface and the trust building, they piggyback on the incumbent investment in assets and services and have exclusive insight into the business ecosystem's behaviour.

To benefit from a digitalized ecosystem while protecting against a centralized digital platform owned by a dominant player, incumbents must realise a shared digital backbone for the circular economy that accelerates the transition and reduces time, cost and risk in implementing circular business models. Recent history shows how the emergence of shared cross-industry backbones has enabled innovation and differentiation in a business ecosystem without monopolizing the foundational infrastructure. The internet, shared molecular research - such as GenBank, the railroad, the telephone, containerization of global trade and electrification, are all examples of this.

A digital backbone for the circular economy will have a similar impact on accelerating competitive circular business models and putting global climate goals within reach. It is now time to collaborate on a digitalized ecosystem that is competitively and commercially neutral, that facilitates differentiation and innovation for each company and ensures seamless digital interoperability for any ecosystem participants.

# CONCLUSION

- The circular economy is an alternative economic model that aims to minimize waste and promote sustainability by keeping resources in use for as long as possible. Unlike the traditional linear economy, which follows a "take, make, dispose" pattern, the circular economy focuses on reducing, reusing, and recycling products and materials to create a closed-loop system.
- Key principles of the circular economy include designing products for longevity and durability, using regenerative and renewable resources, encouraging collaborative consumption, and implementing efficient reverse logistics to recover and repurpose used items.
- The benefits of adopting a circular economy approach are numerous. It helps reduce environmental impacts, promotes economic growth by fostering innovation and creating jobs, enhances resource security by reducing reliance on scarce materials, and leads to cost savings for businesses and consumers alike.
- Transitioning to a circular economy requires collaboration between governments, businesses, consumers, and other stakeholders. Policies supporting sustainability, investments in research and development, and raising awareness among the public are all essential elements for successfully implementing circular economy practices and building a more sustainable future.

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**THANK  
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