



# Green UP

Topic 2 Circular Economy  
Subtopic 2.2 Circular Business  
Models





# Circular Business Models

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# INTRODUCTION



Circular business models represent fundamentally different ways of producing and consuming goods and services. They have the potential to drive the transition towards a more resource efficient and circular economy and, in doing so, significantly reduce the environmental pressure resulting from economic activity. Under this subtopic, it is presented the circular business typology as well as key messages, characteristics, policies and risks.

# Key messages

- Circular business models serve to reduce the extraction and use of natural resources and the generation of industrial and consumer wastes. They represent the key activities required to transition to a more resource efficient and circular economy.
- Circular business models use already existing materials and products as inputs and therefore their environmental footprint tends to be considerably smaller than that for traditional business models.
- The environmental outcomes of circular business models also depend on their market penetration. However, the market share of these business models is currently limited. Recycling, remanufacturing and repair, the sharing of spare capacity, and the provision of services rather than products typically only account for up to 15% of production in any given sector.
- Some circular business models have experienced rapid growth in recent years, largely in response to the emergence of new technologies. For instance, Airbnb has gone from being a curiosity in the accommodation sector ten years ago to being the largest single supplier of short term stays today. Most other circular business models – recycling and repair being good examples – are relatively mature.
- In some cases, the emergence of enabling technologies, more supportive consumer preferences, or new business risks will drive increased adoption of circular business models. Public policy also has a role to play. In particular, governments could focus on addressing widely cited barriers such as:
  - I. the mispricing of natural resources that results from under-priced externalities and the provision of subsidies for extractive sectors;
  - II. the transaction costs that hinder collaboration within and across value chains;
  - III. the trade policies that restrict cross border flows of used products and
  - IV. secondary material feedstock, and;
  - V. the status quo biases that are often inherent in investment and consumer
  - VI. behaviour.

# Circular Business Models

Moving towards an alternative economic system requires a transformation of production and consumption patterns, value-chains and sectors. This in turn requires new business models and innovations, which will be disruptive. Circular Business Models (CBM) represent fundamentally different ways of producing and consuming goods and services. Businesses have the potential to drive the transition towards a more resource efficient and circular economy and, in doing so, significantly reduce the environmental pressure resulting from economic activity. Although there are many possible business innovations and associated business models that may come to play when transitioning towards circularity, five overarching CBMs can be identified reflecting the basic principles of circular economy: circular supply; resource recovery; product life extension; and sharing platforms and products as a service.

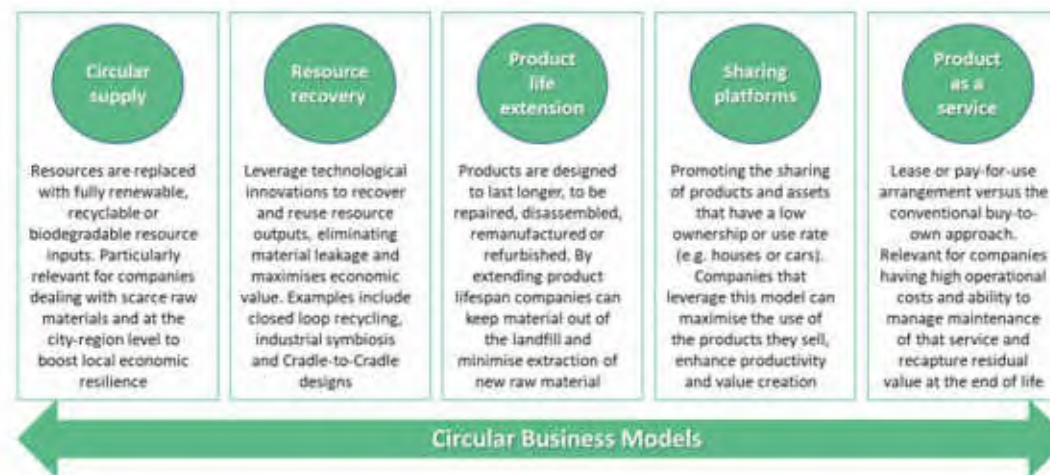


Figure 1: Overarching Circular Business Models

Source: European Commission, Methodology for the implementation of a circular economy at the local and regional scale

# Circular Business Models

**A circular business model articulates the logic of how an organisation creates, offers, and delivers value to its broader range of stakeholders while minimising ecological and social costs.**

Circular businesses no longer focus mainly on profit maximisation or pursue cost-cutting through greater efficiency in supply chains, factories, and operations as the primary corporate objective. Rather, they concentrate on redesigning and restructuring Product-Service-Systems from the bottom up to ensure future viability of business activities and market competitiveness.

Circular businesses are deeply involved in the product usage phase; they generate revenues through provisioning services instead of selling physical products; they rethink the conventional producer-consumer-relationships, value creation activities and the structure of value chains; ecological and social factors complement the overall business culture and philosophy.

The move to a circular business model is an example of a fundamental change, which requires a new way of thinking and doing business. The following identified circular business model typology provides opportunities for implementing the idea of circularity at a practical level. It should be noted that the briefly described types do not necessarily present full business model innovations, but rather, key elements of strategies that contribute to a circular business. They have their own distinct characteristics but precisely boundaries between them do not exist. They can be used singly or in combination to support companies achieve massive natural resource productivity.



# Circular business model typology

## **Circular supplies**

It is based on supplying fully renewable, recyclable, or biodegradable resource inputs that sustain circular production and consumption systems. The value proposition focuses on the substitution of fossil, critical and scarce materials.

## **Access and performance**

Access and performance is concerned with providing the capability or services to satisfy users' needs without owning physical products. The value proposition includes the offering of Product-Service-Systems, a combination of products and services that seek to provide functionality for customers.

## **Extending product value**

Extending product value focuses on exploiting residual value of products and delivering high-quality, long-lasting products supported by design for durability, reparability, upgradability, and modularity. Values that would otherwise be lost through wasted materials are instead maintained or even improved by repairing, upgrading, refurbishing, remanufacturing or remarketing products.

## **Bridging**

It promotes platforms for collaboration among producers and consumers, either individuals or organizations. The value proposition concentrates on enabling interaction between different but interdependently actors and bring together supply and demand.



# Key characteristics of circular business models

Circular business models modify the pattern of product and material flows through the economy. By doing so, they can reduce the adverse environmental side-effects resulting from the extraction, use, and eventual disposal of natural resources and materials. This results not only from facility level improvements in material productivity, but also from more fundamental changes in production and consumption patterns. For example, instead of using natural resource inputs more efficiently, renewable energy generation and the production of raw materials from scrap do not use them at all.

## **Five headline business models for a more circular economy:**

- Circular supply models, by replacing traditional material inputs derived from virgin resources with bio-based, renewable, or recovered materials, reduce demand for virgin resource extraction in the long run
- Resource recovery models recycle waste into secondary raw materials, thereby diverting waste from final disposal while also displacing the extraction and processing of virgin natural resources
- Product life extension models extend the use period of existing products, slow the flow of constituent materials through the economy, and reduce the rate of resource extraction and waste generation
- Sharing models facilitate the sharing of under-utilised products, and can therefore reduce demand for new products and their embedded raw materials
- Product service system models, where services rather than products are marketed, improve incentives for green product design and more efficient product use, thereby promoting a more sparing use of natural resources.

# Business model strategies to slow and close resource loops



## **1. Provide and Perform**

Providing the capability or services to satisfy user needs without needing to own physical products.

## **2. Extend product value**

Exploiting residual value of products – from manufacture, to consumers, and then back to manufacturing – or collection of products between distinct business entities.

## **3. Long-life**

Business models focused on delivering long-product life, supported by design for durability and repair for instance.

## **4. Encourage sufficiency**

Solutions that actively seek to reduce end-user consumption through principles such as durability, upgradability, service, warranties, reparability and a non-consumerist approach to marketing and sales.

## **5. Extend resource value**

Exploiting the residual value of resources: collection and sourcing of otherwise “wasted” materials or resources to turn these into new forms of value.

## **6. Industrial Symbiosis**

A process-oriented solution, concerned with using residual outputs from one process as feedstock for another process, which benefits from geographical proximity of businesses.

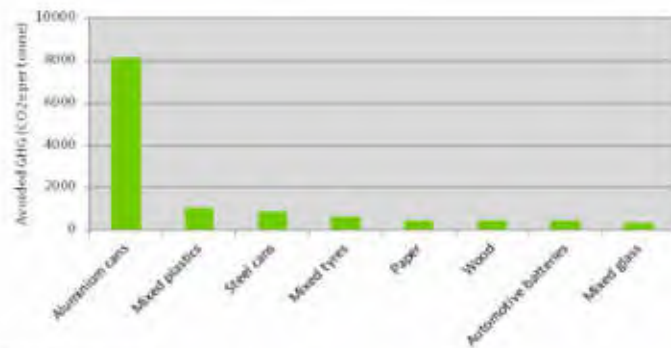
# The environmental potential of circular business models

Circular business models, by closing resource loops and by slowing and narrowing resource flows, can reduce the environmental footprint of economic production and consumption.

These environmental benefits can be significant. In the case of the resource recovery business model, producing raw materials via recycling, rather than from non-renewable natural resources, can reduce greenhouse gas emissions by as much as 90% (BIR, 2008). The magnitude of emissions reductions involved varies across materials, but is significant in almost all cases (Figure 2).

Other circular business models also have considerable environmental benefits. Remanufacturing products that have reached their end of life can reduce the extraction of natural resources and generation of waste by up to 80% relative to manufacturing new products. Reduced extraction, processing, and transport of natural resources also translates into energy savings, often in excess of 50%.

Although relatively little empirical data is available, the sharing or leasing of already existing products also seems likely to lead to lower environmental burdens. A switch from ownership to access creates a new set of incentives around product design, product use, and product disposal. For product manufacturers, the retention of ownership can incentivise the design of products that are both relatively long-lasting, and more amenable to remanufacture or recycling at their end of life. For consumers, paying for the service provided by the product, rather than the product itself, can lead to behavioural changes. A number of studies find that members of urban car sharing schemes typically reduce their vehicle kilometres travelled by 15-40%.



Source: Turner et al. 2015

Figure 2: Avoided GHG emissions per tonne of recycled material

Source: Turner et al. 2015



# The environmental potential of circular business models is clear, but risks remain.

Some of these risks are business model and sector specific:

- The adoption of the circular supply business model in the form of increased production of bio-based materials could stimulate land cover change and place additional pressure on ecosystems and biodiversity.
- Without appropriate controls, more widespread material recovery and recycling could increase society's exposure to harmful chemical substances contained in secondary materials.
- The continued emergence of collaborative modes of consumption could trigger a shift away from green substitutes (in the transport sector for example, where consumers may choose car sharing or pooling over public transport).

More generally, the emergence of rebound effects could negate some of the first order environmental benefits of circular business models. For example, in the context of sharing models, it has been shown that Airbnb rooms are typically 15-20% cheaper than equivalent hotel rooms. The consumer savings that this generates may well be allocated to additional consumption, with a corresponding environmental footprint.



# Key policy messages



Policy interventions are required to create the conditions for the wider adoption of circular business models.

Ultimately, transitioning to a markedly more circular and resource efficient economy – one where the environmental pressures associated with economic production and consumption are significantly reduced – will require more widespread penetration of circular business models. Policy can play an important role by addressing the market failures, policy misalignments, and status quo biases that currently hinder the competitiveness of these business models.

Policy can help to:

- ensure that the full environmental costs of production and consumption activities are reflected in market prices;
- improve collaboration within and across sectoral value chains. Fostering industrial symbiosis clusters, promoting online material marketplaces, establishing secondary raw material certification schemes, and, more generally, facilitation of cooperation within and across value chains may be worthwhile initial steps;
- ensure that existing regulatory frameworks are coherent and fit for purpose, and not serving to preserve an existing status quo;
- improve existing educational and information programs to provide individuals with a better understanding of the unintended consequences of their consumption choices. The use of behavioural insights and nudges, such as through labelling requirements, may be a promising way forward;
- promote the supply of circular products (“supply-push measures”) or demand for them (“demand-pull measures”).

For the former this includes eco-design standards, strengthened extended producer responsibility (EPR) schemes, and the provision of targeted R&D funding. Examples of the latter include differentiated VAT rates, recycled content mandates, product labelling standards, and green public procurement.

# CONCLUSION



Circular business models are a sustainable economic approach that aims to minimize waste and optimize resource usage. Unlike the traditional linear "take-make-dispose" model, circular models focus on creating closed-loop systems. Key principles include designing products for longevity and ease of repair, promoting resource efficiency, extending product life through repair and refurbishment, and encouraging sharing and collaborative consumption. Companies may offer products as services, implement reverse logistics, and explore waste-to-resource approaches. By adopting circular models, businesses can reduce their environmental impact, enhance resilience, and attract environmentally conscious consumers.

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