A framework for enabling circular business models in Europe

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The circular economy has become a priority policy topic in Europe (EC, 2015, 2020) and is a key objective of the European Green Deal. There is increasing interest in the potential for altering traditional business models to enable materials and products to be reused and remain in the economy for as long as possible — as opposed to being used once and then discarded. This briefing presents an analytical framework, identifying actions that can be taken to implement circular business models effectively.

Key messages

- Circular economy in Europe requires the implementation and upscaling of circular business models on a wide scale.
- Meeting circular economy goals (e.g. reuse, repair, recycling) requires innovation in the type of business model used (e.g. moving from sales to leasing), technological innovation (new technologies) and social innovation (new ways of interacting or connecting business and people).
- Implementing and upscaling circular business models requires policy enablers that puts in place a supportive policy framework and of behaviour that leads to a change in consumption behaviour and education.
- Taking the textiles system as a test case, there are four main circular business model types, each supporting the shift towards circularity: (1) ensuring products' longevity and durability; (2) access-based models (renting and leasing); (3) textile collection and resale; and (4) recycling and reusing materials.

An underpinning report on business models in the circular economy by the EEA's European Topic Centre on Waste and Materials in a Green Economy (ETC/WMGE) is available.

An analytical framework for circular business models

This briefing presents an analytical framework for circular business models. It identifies actions to take to implement circular business models effectively and ideas for upscaling them as part of a shift to a circular economy in Europe.

In 2012, the Ellen MacArthur Foundation framed the circular economy as a business opportunity (Ellen MacArthur Foundation, 2012). Since then, business and research interest in the circular business model concept has rapidly increased (Geissdoerfer et al., 2017). However, as the field grew, so did variations in the definitions and typologies used to explain and discuss circular business models (Kirchherr et al., 2017). Regardless of these different definitions, companies and policymakers need to understand what to do to become more circular in an economically and environmentally feasible way (Kirchherr and van Santen, 2019).

To implement and upscale circular business models, the following elements are required:

1. Circular goals, such as reuse, repair and recycle, need to be agreed on by policymakers. In the EU, this has already been done.
2. New business models need to be developed through innovation by companies. This is called business model innovation.
3. Technical and/or social innovation in companies and society need to go hand in hand with business model innovation.

However, this innovation will not necessarily happen by itself. Certain enablers need to be in place. First, policies need to be put in place to support the innovation and circular business models. Second, a change in the behaviour and education of stakeholders and consumers is required.

Together these elements provide a framework to enable the implementation and scaling of circular business models. The analytical framework for circular business models, including the circular goals, the various types of innovation and the enablers, are described in Box 1 and illustrated in Figure 1.

Box 1. Elements of the EEA framework for enabling circular business models

Business model innovation is a term used for innovation in value proposition, creation and delivery, and in value captured by a company. Circular business model innovation could involve developing a completely new business model, or introducing a business model that is new to the company, even if it is considered fairly common in other companies or sectors. Circular business model innovation should not be considered independently from related technological and social innovations, which are closely intertwined.

Technical innovation is often (mis)understood as the only type of innovation, namely technology-based invention. It is an iterative process initiated by perceiving a new market and/or new service opportunity for a technology-based invention.

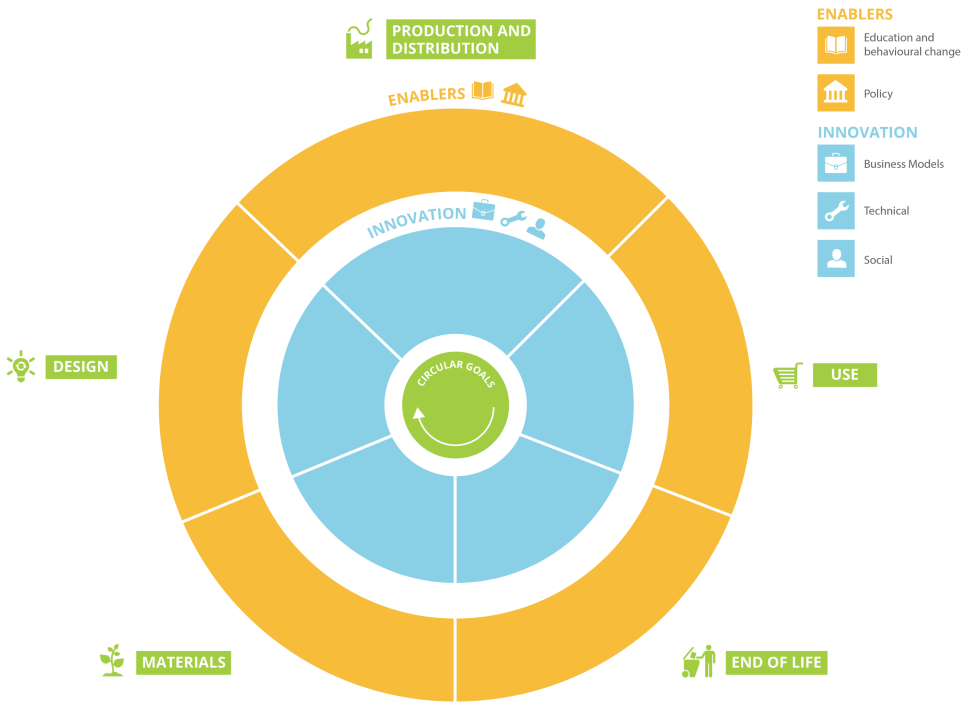
Social innovation is a process encompassing new solutions and processes that meet societal goals, while simultaneously changing behaviours and leading to new or improved capabilities and relations and to better use of assets and resources (Pue et al., 2016).

Policy enablers can support business model innovation by providing adequate laws and regulations, financial support, economic incentives and other policies to enable successful circular business models. Some established legislative measures, such as the EU Eco-design Directive, have already regulated energy efficiency and some circularity features of energy-related products (EC, 2020).

Behavioural and education enablers are crucial, as the choices made by millions of consumers can support or hamper the adoption and upscaling of

circular business models (Van Weelden et al., 2016). Consumers need to be knowledgeable, able and willing to move towards circular products and services.

Figure 1. EEA analytical framework for circular business models



Source: EEA and ETC/WMGE; Illustration by CSCP.

Circular business models can enable the meeting of circular strategies through the product life cycle and value chain

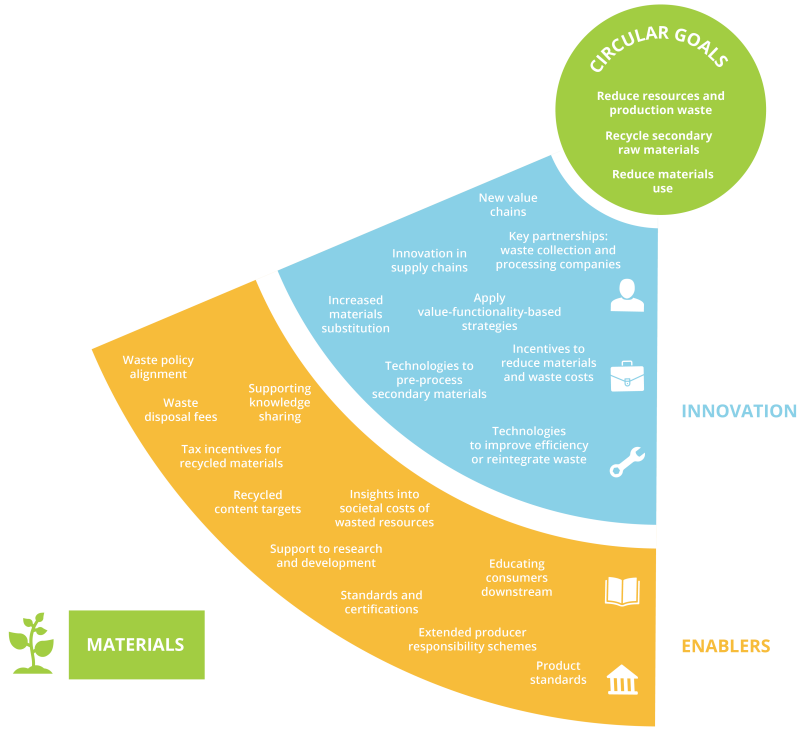
The EEA envisages the circular economy as one in which circularity is implemented in all phases of the life cycle (EEA, 2019a).

In all phases of the product life cycle — often referred to by business as its value chain — companies can pursue circular goals, such as reuse, repair and recycling, by implementing different strategies to create, deliver or capture value into their business models. The relevance of the different circular goals is not the same for each lifecycle phase, and the actors that operate in each phase are not the same. For example, in the 'materials' phase, typical actors are mining companies and material processing industries, while in the 'use' phase, the actors are consumers or companies buying and using finished products. While in the 'materials' phase 'recycling' is an achievable circular goal, it is less relevant in the use phase. Circular goals to be pursued in the use phase are typically related to 'longer use', 'repair' or 'reuse'.

Below, we summarise ways to reach circular goals through circular business models for each phase of the product life cycle.

Materials phase. Reducing production waste, using recycled materials, or even reducing the use of certain materials, can be integrated into a working business model by companies in the raw materials sector. Alongside business innovation, technical and social innovation are also needed, e.g. techniques to reuse materials and new ways of companies collaborating across the value chain. Policy measures such as banning substances of concern, or economic measures that affect material demand in the value chain (e.g. extended producer responsibility schemes, product standards), can provide an important trigger for change. Figure 2 gives an overview of enabling actions in the materials phase. The underpinning report provides similar figures for each phase of the life cycle.

Figure 2. Key innovation and enabling actions to stimulate circular business models to meet circular goals in the materials phase



Note: EPR, extended producer responsibility; R&D, research and development.
Source: EEA and ETC/WMGE; Illustration by CSCP.

Product design phase. Circular design is a key factor for implementing circular goals, as the design of products determines their potential for reducing, reusing, remanufacturing or recycling materials (EEA, 2017). Implementing circular design depends on technological solutions, business model innovation to align business incentives with the costs and benefits of circular design practices, and social innovation to align the intentions behind the product design with the way the product is used. Both policy and behaviour enablers have important roles to play in creating appropriate regulatory, economic and behavioural incentives.

Production and distribution phase. Incremental innovation in process efficiency and optimisation has contributed to lower resource use in production and distribution processes. More radical

innovation is required, however, to achieve decoupling of resource use from economic growth. Such innovation is partly technological (e.g. the introduction of digital, distributed production technology), partly business model-related (service models or take-back models), and partly social (consumers adopting new practices such as sharing or pay-per-use models or acknowledging the residual value of goods after use). Proper education on the value of goods (including environmental and social values) would improve the success rate of such innovations, as would policy measures.

Use phase. The realisation of circular goals in this phase can differ widely from product to product, and from business-to-business, through business-to-consumer to consumer-to-consumer models. The behaviour of users plays a key role in determining how products are used and managed at the end of the use phase. Consequently, business model innovation and social innovation in the use phase needs to focus on increasing reuse, longer use, repair and a shift from owning products to social practices that focus on product function or performance.

End-of-life phase. In the linear economy, products become waste, and — after proper collection — enter the waste management system to be destroyed for recycling, energy recovery or disposal. However, other practices are also becoming more important in achieving circular goals, such as collecting products for reuse and repurposing products and materials to create new value.

Illustrating circular business models for textiles

The textiles production and consumption have considerable environmental impacts (EEA, 2019b). Here, we consider the textiles sector as an example in order to explore the potential for implementing and upscaling circular business models in the EU.

Textiles play an important role in the European manufacturing industry, employing 1.7 million people and generating a turnover of EUR 178 billion in 2018 (Euratex, 2019). The 2020 circular economy action plan recognises the textiles sector as a priority product value chain because of its high use of resources (materials, water, land and chemicals), greenhouse gas emissions and waste generation (EEA, 2019b; EC, 2020).

To tackle these challenges, an EU strategy for textiles will be developed. The aim is to strengthen the competitiveness of Europe's textile industries by creating a market for sustainable and circular textile products, services and business models.

The 2019 EEA briefing Textiles in Europe's circular economy highlighted that the shift towards a sustainable and circular textiles system requires a systemic change involving innovative production methods, circular business models, more sustainable behaviour, supportive policy measures and education at all stages of the value chain (ETC/WMGE et al., 2019; EEA, 2019b).

Currently, most business models in the textiles value chain are designed and optimised to fit the linear system.

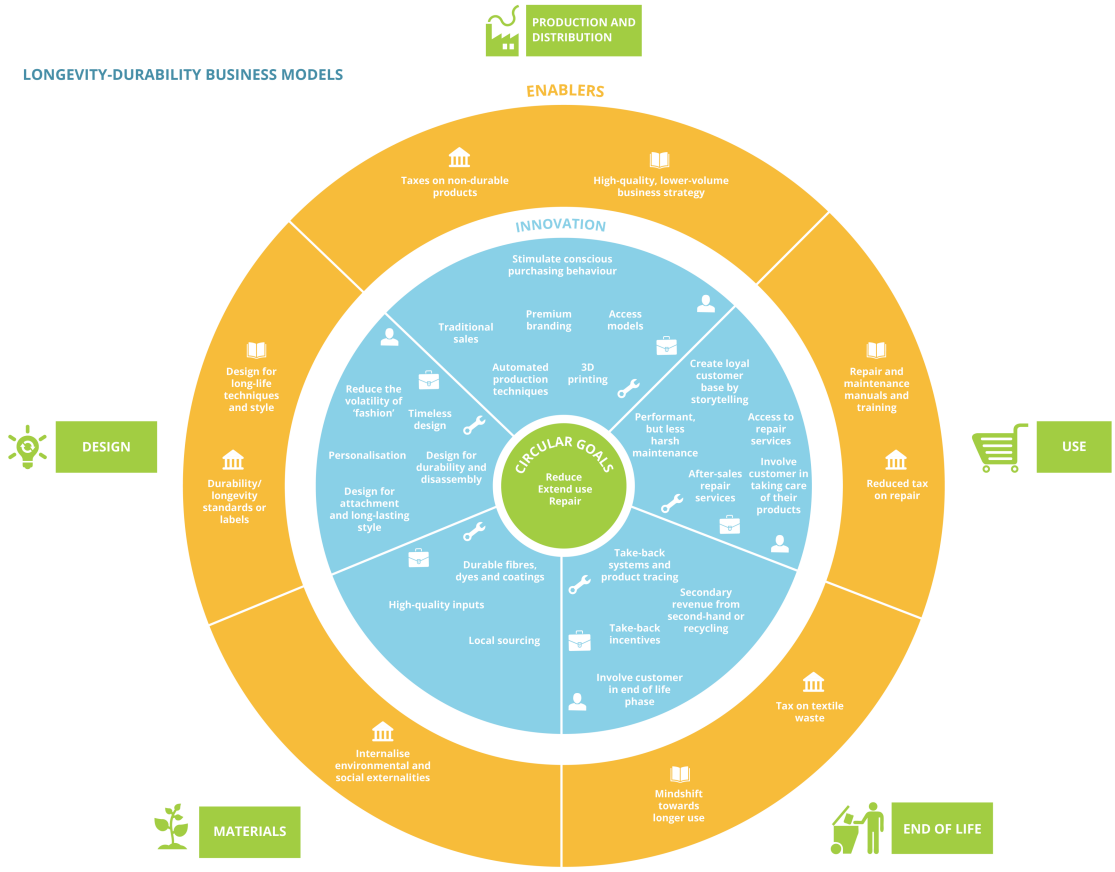
Implementing circular goals into the textiles sector requires a profound change in business models, involving rethinking the logic of the three value dimensions, i.e. what value is proposed, how value is created and delivered, and how value is captured.

In the underpinning report, we identify which strategies offer opportunities to create viable circular business models for textiles, and which technical and social innovations are required to allow their successful implementation. We also highlight policy interventions and behavioural change and educational activities that could help to overcome barriers or enable upscaling of these circular business models. We have identified the following business model options that can support the shift towards a circular textiles system.

Longevity and durability

Durable textile products, that have a long life are sold with a focus on delivering a long product life. This approach is often combined with reparability and offering customers maintenance and repair services. Figure 3 illustrates enablers of the longevity and durability of textiles. Similar figures for the other business model options are available in the underpinning report.

Figure 3. Enablers of longevity and durability of textiles



Note: The underpinning report also contains figures showing access-based models, textiles collection and resale, and recycling and material use.
Source: EEA and ETC/WMGE; Illustration by CSCP.

Access-based models, based on renting and leasing or sharing

In these product-as-a-service models, the textile products remain the property of the company, and the customer pays to use the products. Access-based models can lead to lower resource use by increasing the utility rate of the product stock.

Textile collection and resale

Business models related to resale focus on extending the useful life of textiles beyond the first user. The collection of used textiles can be limited to brands taking back only their own (high-quality) products for re-selling in a second-hand market or as vintage collections; or it can be aimed at general collection, regardless of brand and condition, mostly aimed at re-selling to the global textile market for reuse and recycling (mainly done by third parties or charity organisations).

Recycling and material reuse

This model puts the focus on closing the loop in the textiles sector, by turning waste textiles into raw materials for new textile production chains. The waste can be pre-consumer (e.g. unsold clothes) or post-consumer textile waste, and the material reuse can be at the level of either product parts (e.g. small product adjustments, reusing fabric in new products) or fibres (producing recycled fibres and using recycled materials to make new products).

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