

# Accelerating Transition to the Circular Economy

## Przyspieszenie przejścia na gospodarkę o obiegu zamkniętym

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**Key words:** *circular economy, extended producer responsibility.*

### Abstract

The article discusses the key principles and conditions required for an accelerated transition to the circular economy, a new economic model that represents sustainable progress towards efficient green growth and provides the framework to develop new business models aimed at increasing the value, use and life of materials, products and assets. Embracing the circularity principles can also accelerate the recovery from the current economic downturn. The transition to the circular economy requires a radical change in the way we produce and consume. Products are designed for durability, upgradeability, reparability and reusability. Companies develop new business models generating revenue streams from services rather than products while making a more efficient use of resources and materials and consumers use products efficiently and discard them in such a way that they can be turned into secondary materials that can enter a new production-consumption cycle. The introduction of the Extended Producer Responsibility (EPR) is considered to be an essential step in the road to circularity. Policy makers should also try to benefit from the experiences of more advanced economies and form strong partnerships in order to choose the most optimal path to the transition to the circular economy.

**Słowa kluczowe:** *gospodarka o obiegu zamkniętym; rozszerzona odpowiedzialność producenta*

### Streszczenie

W artykule omówiono kluczowe zasady i warunki wymagane do przyspieszonego przejścia do gospodarki w obiegu zamkniętym (GOZ), nowego modelu gospodarczego, który stanowi trwały postęp w kierunku efektywnego, zielonego wzrostu i zapewnia ramy do opracowania nowych modeli biznesowych ukierunkowanych na zwiększenie wartości, wykorzystania i żywotności materiałów, produktów i aktywów. Przyjęcie zasad GOZ może również przyspieszyć wyjście z obecnego spowolnienia gospodarczego. Przejście do GOZ wymaga radykalnej zmiany sposobu produkcji i konsumpcji. Produkty są projektowane pod kątem trwałości, możliwości modernizacji, możliwości naprawy i ponownego wykorzystania. Przedsiębiorstwa opracowują nowe modele biznesowe generujące strumienie przychodów z usług, a nie z produktów, jednocześnie efektywniej wykorzystując zasoby i materiały, a konsumenci efektywnie korzystają z produktów i wyrzucają je w taki sposób, że można je przekształcić w materiały wtórne, które mogą wejść w nowy cykl produkcji-konsumpcji. Wprowadzenie rozszerzonej odpowiedzialności producenta (EPR) uważa się za niezbędny krok na drodze do GOZ. Decydenci powinni również starać się korzystać z doświadczeń bardziej zaawansowanych gospodarek i tworzyć silne partnerstwa, aby wybrać najbardziej optymalną ścieżkę przejścia do gospodarki cyrkularnej.

## Why we need to become circular

The circular economy concept is gaining attention in light of increasing consumption and resource use by a fast-growing population with rising standards of living. Circularity refers to the circular flow and efficient use and reuse of resources, materials and products. This is a new economic model that represents sustainable progress towards efficient green growth, moving from a consumption and disposal-based linear model to extending the life and use of products and materials and minimising wastage. Due to its expected environmental, climate, social and economic benefits, the circular economy is not only being strongly promoted by the European Commission and other EU institutions, as well as a growing number of EU Member States and cities, it is also attracting increasing attention from the business community and from public and private financiers. The circular economy clearly goes beyond resource efficiency and recycling and provides the framework to develop new business models aimed at increasing the value, use and life of materials, products and assets and designing out waste from production and consumption.

Circular economy strategies have been under development in European cities, regions, and countries in the last few years. 33 strategies have been adopted since 2014, and at least 29 more are under development. [1] The Ellen MacArthur Foundation, OECD, European Commission and other notable organizations have estimated that economies could greatly benefit from circular economy strategies on economic, social and environmental dimensions.

Adopting the circular economy policy has a potential to put economies on the road to transformation to an economic system that uses natural resources in the most efficient way, preserves the value of materials and products by using them circularly, and reduces the negative impact of economic activities on the environment and health. Applying circular economy approaches can cut industrial emissions, reduce the production of and exposure to hazardous substances and contribute to climate change mitigation. With its truly symbiotic effects on the economy and the environment, the circular economy is a way of achieving certain UN Sustainable Development Goals (SDGs).

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## How do we go circular

The transition to the circular economy requires a radical change in the way we produce and consume. In a circular economy, products are designed for durability, upgradeability, reparability and reusability, with a view to reusing materials from which they are made after they reach the end of their life. In the use phase, products are managed with a view to maximizing their utilization capacity and extending their useful life, thus maintaining their value for as long as possible. This is made possible by companies that develop new business models generating revenue streams from services rather than products while making a more efficient use of resources and/or giving new value to end-of-life products and materials.

Consumers use products efficiently and discard them in such a way that they can be reused or, if this is technically or economically unfeasible, recycling operators turn them into secondary materials that can enter a new production-consumption cycle. This needs to be supported by the whole system, from enabling technologies and infrastructures to a form of market organization that facilitates collaboration along and across value chains and a form of governance and regulation that encourages companies to adopt circular approaches to social norms that make circular production-consumption patterns socially preferable. This paradigm is in contrast with the linear economy which is based on the 'take-make-use-discard' model. This is a model which maximizes the amount of products produced and sold but does not focus on preserving materials. Such an approach prevents effective collaboration along value chains and stimulates the 'throw-away' consumer culture with its noxious environmental consequences.

Like with any systemic change, the transition to the circular economy requires several elements of the system to change simultaneously. The inertia and resistance of the current linear economic systems prevent the transition from occurring. Concerted actions by a host of stakeholders are needed. Government at all levels, businesses, innovators, academia, investors and consumers all have to play their distinct roles and contribute to the process.

## What are the first steps at the national level

With the general objective of replacing the 'end-of-life' concept with an economic system that closes material loops, many countries have embarked on an accelerated path to transition to the circular economy. This normally entails the development of the circular economy strategy and roadmap aimed at comprehensive approach from multiple points of view including production, consumption, waste management, secondary raw materials, innovation, investments as well as ongoing initiatives, in different sectors, by different players, and at different stages of the value chain or different stages of development. Many countries have also introduced in their regulatory systems an Extended Producer Responsibility (EPR), which is considered a key financial and operational instrument which promotes the implementation of waste management schemes in line with the waste hierarchy and the development of a resource-efficient economy.

## Why is EPR such an important step and what are its key elements

The EPR is an approach of the environmental policy where the producers and importers of certain products are responsible to manage the wastes generated after the use of their products, and among them to carry related costs. The purpose of the EPR is to improve environmental performance of the waste management system and to mobilize financial resources needed to ensure the reuse, separate collection, recycling, recovery and/or other treatment of waste. It is based on the "polluter pays" principle, which is the cornerstone of

many environmental policies. The EPR facilitates the attraction of private investments in the waste management infrastructure and the creation of different jobs in the country. The EPR is directly linked to the green and circular economy development.

At the initial stages of the implementation the following specific wastes fall within the EPR: (i) Packaging waste (plastics, paper, metal, glass, wood); (ii) Waste from electric and electronic equipment; (iii) Waste oils; (iv) End-of-life tyres; (v) End-of-life vehicles; and (vi) Waste batteries and accumulators

The EPR results in:

- Separate collection and using waste as a resource
- Application of waste reuse, recycling and recovery technologies
- Reduction of landfilled waste
- Safe treatment of hazardous waste
- Improvement of environmental and economic performance of all operators (producers, distributors, end-users, collectors, disassemblers, recyclers and exporters)
- Establishment of new enterprises and jobs
- Reduction of negative impact on human health and environment.

The implementation of the EPR is normally supported by regulations and guidelines covering such topics as: (i) liabilities and requirements for the setting up and authorization of individual and collective compliance schemes and EPR organizations by producers (including importers); (ii) rules for the establishment of the EPR register and producers' registration; (iii) scope of decision authority and liabilities of involved parties; (iv) technical regulations on the collection and treatment for each category of specific waste; (v) targets to be achieved for the gradual adoption of the EPR; and (vi) control mechanisms.

## How can authorities benefit from experience to date

No government is capable of carrying out the transition on its own. Cities and local communities play a crucial role in the transition – they are increasingly recognized as the central generators of circular change. In the process of creating the roadmap to circularity, various available resources need to be considered. From guidelines found in EU documents to national documents, but above all, the concrete examples presented in the reports of the Ellen MacArthur Foundation [2], the McKinsey [3] and Systemiq Companies [4], the Circle Economy – The Circularity Gap Report [5], the Dutch [6], Finnish [7] and Danish [8] Roadmaps and various other documents. This will allow to form criteria for the inclusion of good practices taking into account country specifics, both in its natural resources, driving forces behind its economy, hubs of change and cultural models.

Countries embarking on the circularity path should benefit from the experiences of more advanced economies in the implementation of the circularity principles and learn from their successes and mistakes. This calls for forming strong partnerships in order to choose the most optimal path to the transition to the circular economy.

## How can circularity help in the current economic downturn

The recovery measures proposed by governments present an opportunity to seek greater circularity in supply chains, which can act both to improve resource efficiency and resilience for businesses (by building greater resilience to supplier risks) and society (by reducing environmental risks). In circular value chains, waste is minimised and end-of-life products are recovered for reuse, remanufacture, and recycling. This is achieved through improved product design (e.g., for disassembly, remanufacturing and recycling) and increased efficiency in the use of material resources, which generates a number of benefits. The availability of recycled materials and products for reuse and remanufacture leads to new sources of supply and supports the

diversification of supply chains. Circular value chains also help to advance climate mitigation via reduced primary material production and opportunities to shift consumption towards product-service and other circular business models. Governments can catalyse the uptake of circular value chains via green public procurement, removing trade barriers on scrap, landfill fees, further advancement of the EPR, and capacity building amongst firms.

An increased use of digital technologies for supply chain management can also improve resilience and reduce the likelihood of disruptions, by providing data to identify and evaluate a number of resource efficiency risks and opportunities. On one hand, digitalisation lays the foundation for disclosure of climate-related risks by companies for example through the recommendations of the Task Force on Climate-related Financial Disclosure (TCFD) [9]. The recovery from the current economic downturn opens an opportunity for governments to require both clear actions towards alignment with environmental policy objectives, as well as disclosure of climate-related risks as conditions for financial support through recovery policies. Governments can catalyse this shift by attaching conditions on stimulus packages to increase the uptake of these technologies, as well as through targeted innovation policies. ■

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