

The Circular Economy

Between Utopia and Reality

Executive summary

The following paper examines the phenomenon of the circular economy. The method used is the one of a legal and political analysis. The paper approaches, first of all, the definition of circular economy and its possible implications on a global level. It focuses on its nature and its impact on the production cycle. Secondly, it examines the state of the art at European level with a brief summary of the legal steps taken over time. It is then analyzed what the critical points that the adoption of a circular economy may present in the long term both on a practical level and theoretical one. Finally, a brief overview of the current legislation and the key points underpinning European policies is given. It then comes to the conclusions that highlight both the critical points and the opportunities and hopes opened up by this type of economy.

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What is circular economy?

The circular economy is an economy that can regenerate itself, where material flows, both biological and technical, are destined to be revalorized without entering the biosphere.

“There is only one planet Earth, yet by 2050, the world will be consuming as if there were three. Global consumption of materials such as biomass, fossil fuels, metals and minerals is expected to double in the next forty years, while annual waste generation is projected to increase by 70% by 2050.”¹

Looking beyond the current take-make-waste extractive industrial model, a circular economy aims to redefine growth, focusing on positive society-wide benefits. It entails gradually decoupling economic activity from the consumption of finite resources, and designing waste out of the system. Underpinned by a transition to renewable energy sources, the circular model builds economic, natural, and social capital. It is based on three principles:

- Design out waste and pollution
- Keep products and materials in use
- Regenerate natural systems

“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. 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.”²

The state of the art

“To fulfil this ambition, the EU needs to accelerate the transition towards a regenerative growth model that gives back to the planet more than it takes, advance towards keeping its resource consumption within planetary boundaries, and therefore strive to reduce its consumption footprint and double its circular material use rate in the coming decade.”³

¹ Communication from the Commission to the European parliament, the council, the european economic and social committee and the committee of the regions, a new Circular Economy Action Plan, for a cleaner and more competitive Europe, Brussels, 11.3.2020 COM(2020) 98 final.

² Circular economy: definition, importance and benefits, European Parliament News, Url: <https://www.europarl.europa.eu/news/en/headlines/economy/20151201STO05603/circular-economy-definition-importance-and-benefits>

³ European Commission, Communication “A new Circular Economy Action Plan”,11.3.2020 COM(2020) 98 final.

As part of the European Green Deal, the Commission had announced the adoption of a new EU industrial strategy by the end of March 2020. The strategy included a new action plan regarding the circular economy. It aims at supporting the circular design of products and at developing a stronger attention with regards to particular sectors as the textile, constructions, electronics and plastics ones. The measures aim at establishing minimum standards in order to prevent the circulation of environmentally harmful products in the EU market. Among the innovative measures, of great importance is the one introducing an electronic passport for the products which provides information on the dismantling options, the composition and the possibilities of repair. Further proposed by the Commission regard “rules and guidelines on green public procurement; new legislation, including targets and measures to tackle over-packaging and waste generation; examining legal requirements to promote the market for secondary raw materials with mandatory recycled content (for packaging, vehicles, construction materials and batteries); proposing an EU model for separate waste collection; revising rules on waste shipments and illegal exports.”⁴

The legislation on the topic at present is summarized by the following table:

Table 1. Policies affecting resource efficiency on EU-28 level

Life Cycle Stage	Mandatory	Voluntary
Production	RoHS Directive 2011/65/EU	Public procurement Directive No. 2014/24/EU
	Ecodesign Directive 2009/125/EC	Ecolabel Regulation (EC) No. 66/2010
	Packaging and waste packaging Directive 94/62/EC	
	Standardisation Regulation (EU) No 1025/2012	
	Marketing of construction products Regulation (EU) (No 305/2011)	
	REACH Regulation (EC) No 1907/2006	
Consumption / use	Labelling of energy-related products Directive 2010/30/EU	Public procurement Directive 2014/24/EU
	Ecodesign Directive (2009/125/EC)	Ecolabel Regulation (EC) No. 66/2010
	Sale of consumer goods and associated guarantees Directive 1999/44/EC	
End-of-life	Waste Framework Directive 2008/98/EC	
	Plastic bags Directive (EU) 2015/720	
	RoHS Directive 2011/65/EU	

⁴ Legislative train 05.2021, European Parliament, Url: <https://www.europarl.europa.eu/legislative-train/theme-environment-public-health-and-food-safety-envi/file-new-circular-economy-action-plan/05-2021>

Packaging and waste packaging Directive 94/62/EC
Shipments of waste Regulation (EU) No. 660/2014
REACH Regulation (EC) No. 1907/2006

The criticalities of the circular economy

Recycle process is too complex

The recycling process of modern products is far from being efficient. The concept of a circular economy is probably as old as human beings. “In the middle ages, old clothes were turned into paper, food waste was fed to chickens or pigs, and new buildings were made from the remains of old buildings. The difference between then and now is the resources used.”⁵ In the postmodern age we use synthetic materials on a large-scale (mobiles components, batteries, chips are all made of synthetic materials). The growing complexity of the products makes the closing of the economic circle very difficult to be achieved. In each step of the chain of the recycling process resources and energy are dissipated.

“Before industrialisation, almost everything was made from materials that were either decomposable – like wood, reeds, or hemp – or easy to recycle or re-use – like iron and bricks. Modern products are composed of a much wider diversity of (new) materials, which are mostly not decomposable and are also not easily recycled.

For example, a recent study of the modular Fairphone 2 – a smartphone designed to be recyclable and have a longer lifespan – shows that the use of synthetic materials, microchips, and batteries makes closing the circle impossible. Only 30% of the materials used in the Fairphone 2 can be recuperated. A study of LED lights had a similar result.”⁶

Fossil sources of energy are difficult to recycle

“The second dent in the credibility of the circular economy is the fact that 20% of total resources used worldwide are fossil fuels. More than 98% of that is burnt as a source of energy and can’t be re-used or recycled. At best, the excess heat from, for example, the generation of electricity, can be used to replace other heat sources.”⁷ As the second law of thermodynamics states when we transform or transfer energy its quality diminishes. This means that for example it is impossible to make one power plant work with the excess energy of another. The need to use brand new fossil fuels is then inevitable. “Besides, recycling

⁵ K. De Decker, *How circular is the circular economy? Why this proposed solution is little more than a magic trick*, Uneven Earth, November, 2018, Url: <https://unevenearth.org/2018/11/how-circular-is-the-circular-economy/>

⁶ *Ibidem*.

⁷ *Ibidem*.

materials also requires energy, both through the recycling process and the transportation of recycled and to-be-recycled materials.”⁸ Many supporters of the circular economy circumvent this critical point by saying that the solution is in the shift to 100% renewable energies. What at a first glimpse could be a convincing response doesn't take in account the need for renewable energy plants to be maintained and the fact that “to harvest and store renewable energy relies on difficult-to-recycle materials. That's why solar panels, wind turbines and lithium-ion batteries are not recycled, but landfilled or incinerated.”⁹

The difference between demand and supply

The third critical point of the circular economy lies in the fact that energetic and resource use increases more and more every year. “The use of resources grew by 1400% in the last century: from 7 gigatonnes (Gt) in 1900 to 62 Gt in 2005 and 78 Gt in 2010. That's an average growth of about 3% per year – more than double the rate of population growth. Growth makes a circular economy impossible, even if all raw materials were recycled and all recycling was 100% efficient. The amount of used material that can be recycled will always be smaller than the material needed for growth. To compensate for that, we have to continuously extract more resources. Growth makes a circular economy impossible, even if all raw materials were recycled and all recycling was 100% efficient.”¹⁰

What's the state of the negotiations?

The 'New Circular Economy Action Plan, for a cleaner and more competitive Europe was presented on 11 March 2020. It is built on the actions taken since 2015 (when the first Circular Economy Action Plan was introduced). The main points of the plan are the following:

- The product policy framework is based on three pillars: (1) product design (2) empowering consumers and public buyers and (3) greater circularity in production processes.
- A 'Circular Electronics Initiative'; “a review of the Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment; a proposal for a new regulatory framework for batteries; a review of the rules on end-of-life vehicles; mandatory requirements on recycled plastic content and plastic waste reduction measures for packaging, construction materials and vehicles; a policy framework for bio-based plastics and biodegradable or compostable plastics; an EU Strategy for Textiles; a Strategy for a Sustainable Built Environment; and an Initiative to substitute single-use packaging, tableware and cutlery by reusable products in food services, among others;
- 'less waste, more value'. Actions to support waste prevention and circularity, address the issue of hazardous substances, create a well-functioning EU market for secondary raw materials, and address waste exports from the EU (with a revision of the rules on waste shipment);
- cross-cutting actions in the fields of economics, research and innovation;
- the promotion of the circular economy at international level;
- an update of the existing monitoring framework for the circular economy.

⁹ *Ibidem.*

¹⁰ *Ibidem.*

On 14 September 2020, the Commission published a roadmap on the sustainable products initiative. The legislative proposal itself is expected to be presented in the fourth quarter 2021.

On 17 December 2020, the Council adopted conclusions on 'Making the Recovery Circular and Green', providing political guidance on the actions foreseen in the New Circular Economy Action Plan.¹¹ The Parliament, in its resolution, welcomed the New Circular Economy Action Plan. It demanded, inter alia, to the Commission to constitute binding EU mid-term and long-term objectives to be reached in order to reduce the use of primary raw materials and impacts on the environment. It also demanded to keep track of the whole product lifecycle for every product placed on the EU market to check whether the materials used are allowed and what impact the product has on the environment.

In its resolution, Parliament welcomed the Commission's New Circular Economy Action Plan and made over 130 policy recommendations for more circularity. It called, among other things, on the Commission to propose science-based binding EU mid-term and long-term targets for reducing the use of primary raw materials and environmental impacts. It also demanded binding material and environmental footprint targets for the whole product lifecycle for each product category placed on the EU market; and product-specific and/or sector-specific binding targets for recycled content.¹²

Conclusions

The development of the circular economy is certainly a major challenge for the European Union. As we have seen, great strides have been made at the legislative level and more are expected in the near future. This does not eliminate the difficulty of implementing such a plan.

What emerges from the critical points highlighted above seems to be that the circular economy, in order to be realized, and therefore overcome the criticalities, must not only concern a region of the planet, as the European Union may be, but must become a global phenomenon. If only part of the planet enters into a circular economy model and the rest of the globe remains in a linear economy model, the circularity of the economy can hardly be achieved and the effects of a single region carrying out a circular economy model could be insufficient at a global level. However, it is becoming increasingly possible for the European Union to be a vanguard and trailblazer, a model and a global example for other nations or regional organizations in the fields of rights, technology, culture and the economy. On this particular critical point it is of great interest the work of the Global Alliance on Circular Economy and Resource Efficiency (GACERE) which aims to provide "a global impetus for initiatives related to the circular economy transition, resource efficiency and sustainable consumption and production, building on efforts being deployed internationally. GACERE members will do so by working together and advocating at the political level and in multilateral fora, in

¹¹ Legislative train 05.2021, European Parliament, Url: <https://www.europarl.europa.eu/legislative-train/theme-environment-public-health-and-food-safety-envi/file-new-circular-economy-action-plan/05-2021>

¹² *Ibidem*.

particular at the United Nations General Assembly (UNGA), the United Nations Environment Assembly (UNEA) and in G7/G20".¹³

The challenges for present and future generations are enormous, but surely the development of a circular economy model adds a small step to the path that humanity needs to take towards an integral ecology and therefore an earthbound that concerns the whole human being and the relation with the environment in which he lives. In this respect, the circular economy, albeit indirectly, can certainly have a beneficial impact on western democracies by putting back at the center, values related to the essential needs and survival of life, not only human one, on our planet. The impact that a circular economy model can have on the climate and on limiting the possibility of further environmental disasters in the long term is not small, bringing back to the centre of education and innovation not only the care but also the confidence and hope of new generations in the future through a tool and an objective that has not yet fully revealed its potential in moving from a market society to a global cooperative market economy.

¹³ Global Alliance on Circular Economy and Resource Efficiency (GACERE), European Commission website, URL: https://ec.europa.eu/environment/international_issues/gacere.html