

# Intro to the Circular Economy: The link to Sustainable Development

*Written by Nicholas Hutton-Molitor, UNA NZ Intern*

Today's economy is constantly evolving and seeking to improve or maximise its state of existence. Naturally, the development of alternative methods of thinking have emerged. In particular, the idea of a sustainable future for our planet and species has become an ever-present topic of conversation amongst the general populace. Some elements of debate evolve around production/operational alternatives, others are driven by consumer habits and responsibility. One possible emerging concept is the idea of a circular economy (CE). But what is the so-called circular economy and where can its fundamental origins be grounded? This article aims to introduce the CE's conceptual framework and compare it with similar ideas. To demonstrate the basic principles of a CE and shift the status quo, this article highlights examples of industries in global markets that have managed to convert their own business to mould around a CE. In doing so, the role of the consumer and closed supply chains becomes vital to the process going forward. Lastly, this article aims to connect the CE with the United Nations Sustainable Development Goals (SDGs) and how a CE can be complimentary to the achievement of the SDGs.

## Linear vs Circular Economy

A defining feature of the 20<sup>th</sup> century has been the ability to access hard to reach resources from the far corners of the world and bringing them to the global market for general consumption. Though resource efficiency has improved at a remarkable pace, "any system based on consumption, rather than on the restorative use of resources, entails significant losses along the value chain" (Ellen MacArthur Foundation, 2015). Traditional economics adheres to linear approaches. This consistently follows the path of finding an existing resource, extracting the resource, producing the product/good, selling and consuming the resource, then disposing of the resource; thereby producing waste and losing the resources' utility. This is where the concept of a CE comes into play and stands in direct measure against the linear economic model. By changing our economies production and consumption supply chains, we can increase resource efficiency and, some scholars believe, even revolutionise the outlook on growth (Esposito, Tse, & Soufani, 2017).

The CE is not purely about recycling or how society produces and consumes goods and services. It is a lifestyle that promises a sustainable economic model which can be shared among society by synergising existing industries and maintaining resource utility. Achieving the CE is all about shifting consumer, producer and government mentality. A shift from a linear model based on consumption of goods through continuous production to ensure economic output.

## Conceptual beginnings

The circular economy isn't a new concept and has existed under many monikers. Originally termed in 1966 to foreshadow issues with the linear economic model on

finite resource usage (Boulding, 1966), later the concept became a key component on waste management and a focus on policy was born in Germany with the enactment of the Waste Disposal Act of 1972 and thus placing the ownership on manufacturing to adhere to responsible production (Geisendorf & Pietrulla, 2018). From a policy position, this represents the initial application of CE concepts by a national government. Born out of a necessity to incorporate technological growth to manage not only economies of scale and an emerging industrial economy (Preston, 2012), CE has deep roots in systems theory (Von Bertalanffy, 1972) (Geisendorf & Pietrulla, 2018). This would suggest conceptually that a CE promotes collective consciousness by consumer, producer and regulatory entities and accounts for a wholesome holistic approach. Thereby making it easier to buy into for businesses and users to relate to, rather than becoming an exclusive element of a segment of society.

By providing history and context, the actual definition of the CE still remains hidden. Therefore, in a circular economy resource utility is upheld, emission is minimised, and a resource is maintained within or reintroduced in similar or alternate shape/form within any given economy (Geisendorf & Pietrulla, 2018). To pursue a CE, any resource must incorporate partnerships that allow for interchangeability at various stages of its life cycle.

The most difficult stage of interchange is found at the extraction of a resource, since it is the beginning of the cycle of any given resource demanded. However, during production we can begin to impose designs that allow for a resource to become reproducible and versatile in utility. This requires a “collaborative product-development process that both accounts for and helps to determine sourcing requirements, production methods, marketing sales” and incorporating strategies that tackle the end-of-life-cycle (Hanon, Kuhlmann, & Thaidigsmann, 2016). Another approach can be to pivot towards a design-driven approach. This allows for businesses to “discover unexpected ways of meeting customers’ needs with much greater resource efficiency” than previously (Hanon, Kuhlmann, & Thaidigsmann, 2016). Both strategies imply that responsibility is placed on the manufacturing or business stage of any given product/service. Below is an illustration describing the CE lifecycle:

**OUTLINE OF A CIRCULAR ECONOMY**

**PRINCIPLE**

**1**

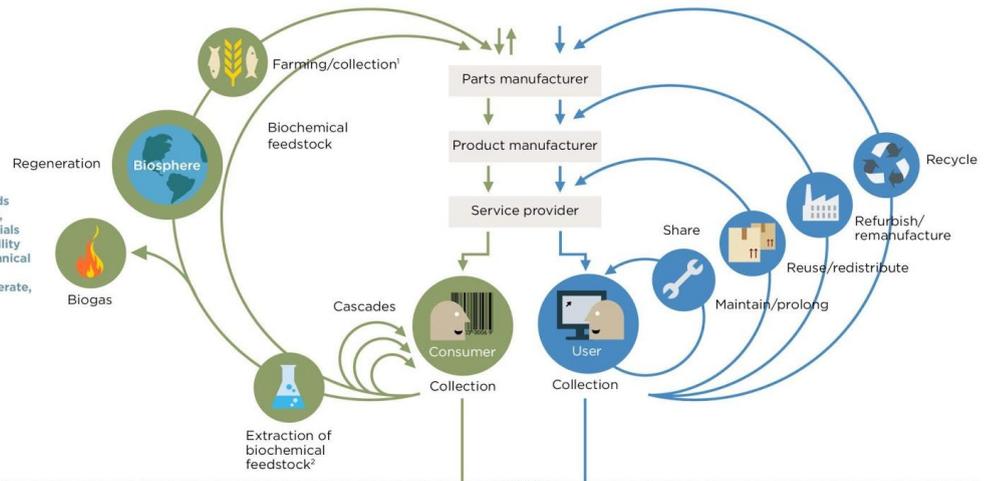
Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows  
 ReSOLVE levers: regenerate, virtualise, exchange



**PRINCIPLE**

**2**

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles  
 ReSOLVE levers: regenerate, share, optimise, loop



**PRINCIPLE**

**3**

Foster system effectiveness by revealing and designing out negative externalities  
 All ReSOLVE levers

Minimise systematic leakage and negative externalities

1. Hunting and fishing  
 2. Can take both post-harvest and post-consumer waste as an input  
 Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment, Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

Figure 1: CE Lifecycle from Ellen MacArthur Foundation

## Shifting Corporate/Social Mentality

Trends in financial reporting suggest that investors and asset owners consider corporate sustainability disclosures and adapt their investment strategies accordingly. Research suggests that “companies that manage sustainability issues well achieve superior financial results” (Bernow, Godsall, Klempner, & Merten, 2019). That is, research has shown that these two phenomena are correlated, not that effective sustainability management produces success in financial outcomes (Bernow, Godsall, Klempner, & Merten, 2019). To achieve consistent financial gains in a CE the entire concept of day-to-day business needs to become interconnected with multiple components of the value chain and the impact of consumer mentality is the key to unlocking a sustainable model.

A small example of how a business may incorporate the reuse of a product in connection with the consumer would be to incentivise the latter. For instance, rebates on products returned to the manufacturer would help minimise waste and increase resource utility. This is evident when we observe the mobile phone industry, where several companies reproduce phones with the same material used by older generation phones. Some companies specialise in collecting old models to be upgraded and redistribute these into less saturated markets (Hanon, Kuhlmann, & Thaidigsmann, 2016). For these strategies to work, producers need to begin by employing design concepts at the

manufacturing stage to allow for the retention of resource utility. However, there is still room for improvement. By changing the business model and allowing for collaborative development of a product throughout the value chain (e.g. logistics, marketing, and distribution to name a few), the CE has great potential in increasing resource efficiency and increasing profitability by reducing hidden costs.

The realisation of the CE begins further up the line with shifts in corporate behaviours. But it does not end there. Of course businesses can advertise social responsibility and alter their operations to fit in with a circular approach. That being said, a key component is the role of the consumer. By consciously reducing consumption of known products that create excessive waste and by demanding ‘cleaner’ products, the consumer can pressure the economy and create wider consensus for a CE. Observing the European Commission’s funded study on the effects of consumer behaviour on the CE, evidence suggests that consumers are willing to engage in alternatives that lead to a CE, primarily taking into account the environmental impact of a linear economic approach (LE Europe, VVA Europe, Ipsos, ConPolicy, and Trinomics, 2018). Additionally, consumers are beginning to “shift their need from product ownership to product accessibility” (LE Europe, VVA Europe, Ipsos, ConPolicy, and Trinomics, 2018). This suggests that there is market potential for providing the service of a good, rather than outright ownership; much like using transport services (air travel) or accommodation (rental homes). One would think leasing future products has a potential for temporary ownership, as has been evident in the household goods industry (LE Europe, VVA Europe, Ipsos, ConPolicy, and Trinomics, 2018). This would encourage reuse and enhance overall resource utility. However, the study did highlight that the lack of information available for new customers might correlate with the lack of engagement by the consumer (LE Europe, VVA Europe, Ipsos, ConPolicy, and Trinomics, 2018).

### Governance & the Circular Economy

We must not forget the role of government in any economy. Holding policy makers accountable goes a long way in ensuring that the CE becomes an actuality. This starts by electing officials concerned with a CE and increasing political debate in public forums to encourage sustainable consumption. Regulation tends to arrive last in the economy. However, some governments are already paving the way for a circular approach. In New Zealand this is reflected by the governments support for the New Zealand Plastic Packaging Declaration, which includes several local brands, retailers, and multinational companies commitment to using 100% reusable and compostable packaging across global operations by 2025 (Ministry for the Environment, 2018). Though this is a step in the right direction, one must be mindful of companies employing socially responsible branding for marketing purposes.

Consumer demand has led to the debate of a sustainable future enter the political arena. So convincing is the evidence that frugal consumption can slow down the industrial process that has led to global economic concerns, such as climate change. It is a telling and encouraging sign to see global policy players, such as the UN, to have adopted the 17 SDG’s. Furthermore, the European Commission’s adoption of the Circular Economy Action Plan in 2015 emphasises the significance of the issue. Thus, allowing for the CE to have a platform of existence. The CE would encompass several of the SDG’s including SDG 12 - sustainable cities and communities - which is an

absolute necessity considering the rapid urbanisation and growth of the human species. More importantly, SDG 12 – responsible consumption and production – is promoted to change the economic mind frame of society. A significant corollary of the CE would be its effect on SDG 13 – climate action – the reduction of waste and the increase in resource utility complements the struggle with climate change. In addition, a CE provides opportunities for cooperation in the spirit of the UN and the promotion of the organisations values. Digitalisation might be the saving grace that will allow for economic efficiency and effective global communication. The danger is how long it will take for government to catch on and regulate the market.

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