

THE PRINCIPLES OF CIRCULARITY - IN BRIEF

By Jerome Lucaes, CEO, Fast Forward Zero, 23rd October 2023

In a **linear economy** (today's world), business models are generally oriented to sell as many products as possible.

This creates an incentive for producers to design products that have a relatively short lifespan in order to continuously sell new products. Most often, old products end up in landfills or are incinerated, quickly destroying the value that was created in the manufacturing process, while resources are extracted as if there are no limits. The linear economy leads to a fast **depletion of resources**, as well as a catastrophic **destruction of natural and social values**.

In a **circular economy**, new business models are invented to optimize these natural & social values and resources while maintaining economic viability.

This shift in the way we do business is from quantity (selling as many products as possible) to quality (creating a business model around a product's longevity and closing resource cycles).

The principles of a circular economy are **inspired by nature** in which the waste of one system is food for another (Ellen MacArthur Foundation, 2013).

Circular businesses aim to retain a product's value as long as possible, if not forever. Products are designed to be long lasting and suitable for **easy & affordable maintenance, repair and upgrades**. At the end of its first use phase, a second-hand use should be privileged over other alternatives like recycling. Only when the original product can no longer be repaired or renovated, its useful resources can still be of service to others.

The **circular economy makes business sense**: reuse of materials can save costs and service models can deliver new business propositions and revenues. Circular businesses allow products to stay at their highest level of value as long as possible.

The **transition to circular models requires four system changes**:

- **circular design & production**: to minimize the use of natural resources (raw materials, energy) and optimize the longevity, repairability and ability to be upgraded/renovated over time
- **optimal use**: products need to be preserved at their highest value as long as possible,
- **value recovery**: once they are no longer in use, products need to be tracked and returned, and their residual value needs to be optimized
- **network organization**: new business activities need to emerge in order to coordinate and manage services and incentives for optimal use and value recovery

Using the principles of **circularity forces us to reinvent** the way we design, produce, distribute, sell, use, and manage the after use of the products we make. In order for these activities to be successful, collaboration between the circular value network partners is essential.

So circularity is not just only about recycling or refurbishing! Below is a synoptic table of the principles of circularity.

If you want to discuss further and discover your circularity potential, don't hesitate to reach out, jerome@fast-forward-zero.com

21 actionable levers to implement the 4 principles of circularity

Circular Design & Production	Sufficiency	“The best circular product is the one which is not produced!” A higher price per product can justify lower volumes
	Circular product design	Designing products with their end-of-life in mind by making them easy to maintain, repair, upgrade, refurbish or remanufacture
	Extended life	Delivering longevity of a product with high levels of guarantees and services for a higher price upfront.
	Circular materials	The use of durable and fully recyclable materials (like metals) is maximized
	Industrial symbiosis	Waste and by-product of industrial actors are used locally by another industrial actor
	Material efficiency	Reduce use of non renewable raw materials and extractive activities. The chain of suppliers demonstrate higher resource efficiency (e.g. input or recycled content) across their productions cycles
Optimal Use	Life Extension / Upgrades	Sells consumables, spare parts and add-ons to support the longevity of products or the upgrade of performance (IT)
	Repair & Maintenance	Repairs, maintains and possibly upgrades products that are still in use
	Product leasing or renting (Product as a Service)	Delivers access to a product rather than the product itself so that the service provider retains ownership of the product. The primary revenue stream comes from payments for the use of the product. For leasing: single user uses the product at any given time. For renting: different users use the product sequentially
	Performance provider (Product as a Service)	Delivers product performance rather than the product itself through a combination of product and services, where no predetermined product is involved and the service provider retains ownership of the product. The primary revenue stream is payments for performance of the product, i.e. pay-per-service unit or another functional result.
	Sharing Platforms	Enables an increased utilization rate of products by enabling or offering shared use/access or ownership through which, different users use the product sequentially.
	Sell and buy-back	Agree on repurchasing the product after some time.
Value Recovery	Closed loop material supplier	Suppliers recapture materials and components to substitute the use of virgin or recycled material
	Refurbishing	Refurbishes used products if necessary and re-sells them
	Second hand	Provides used products
	Remanufacturing	Provides products from recaptured materials and components.
	Recycling	Transforms waste into raw materials. Additional revenue can be created through new sorting and recycling technologies.
Network Enablers	Recovery provider	Provides take back systems and collection services to recover useful resources out of disposed products or by-products
	Process design	Provides services around processes that increase the re-use potential and recyclability of industrial and other products, by-products and waste streams
	Value management	Provides information management services: materials, transparency, payments governance to enable better circular value (reuses, repair, upgrade, dismantling, recycling). For example ICT solutions for smart contracts and payment systems, with information of materials and ingredients
	Regulations	Regulations provides incentives for more circular models
	Trading intermediates	Services to facilitate the trading and the marketing of secondary raw materials

Sources: Fast Forward Zero, adapted from: *Master circular business with the value hill* by Elisa Achterberg (Circle Economy & Sustainable Finance Lab), Jeroen Hinfelaar (Nuovalente), Nancy Bocken (TU Delft)