ANTARIS

GUIDANCE | COMPLIANCE | TRUST

Circular Economy
- From theory to practice

HEALTH & SAFETY MANAGEMENT

QUALITY MANAGEMENT

ACCESSIBILITY

ENVIRONMENTAL MANAGEMENT

ENERGY MANAGEMENT

Antaris Consulting

ANTARIS
GUIDANCE | COMPLIANCE | TRUST

- Experts in management systems, risk assessment, auditing, health, safety and environmental legislation and legal compliance assessments.
- Technical expertise in energy efficiency, sustainability, climate change, carbon management, corporate sustainability strategy, climate adaptation, circular economy thinking, UN sustainable development goals, among others.
- ISO 9001/ ISO 14001/ ISO 45001 & ISO 27001/27701 certified organisation.
- Member of 1% for the Planet.
- Science Based Targets to reduce our emissions by 50% by 2030 consistent with the Paris Agreement and approved by SBTi
- CQI and IRCA/ IEMA/ IOSH/ NEBOSH certified training organisation.
- Excellence Through People 1000:2017 Gold certification.
- Service providers of GreenPlus, GreenStart, Green for Micro (SMEs), Climate Action Voucher and Support Scheme for Energy Audits

Bruce Harper
Consultant

Climate Ready Academy – Circular Economy

CLIMATE READY Academy

Climate Ready Academy
Waste and Circular Economy Leaders Programme

The Waste and Circular Economy Leaders programme aims to support businesses to improve their waste management policies and develop a detailed action plan for their business anchored in Ireland's Waste Action Plan for a Circular Economy.

This programme will provide participants with an understanding of current waste management best practices and guidance on how to move their firm from a take-make-waste consumption model that cannot be sustained to one based on models of circularity.

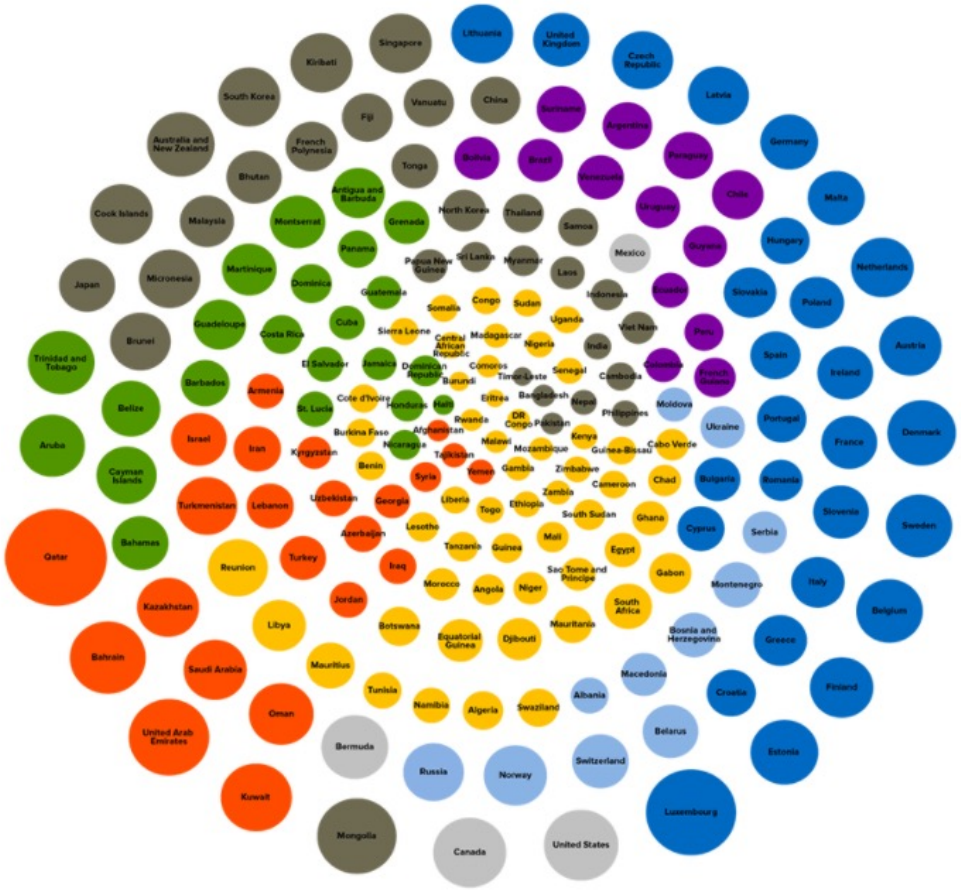
JOIN OUR WAITING LIST

Skillnet IRELAND

Central Solutions lead. learn. sustain.

ANTARIS GUIDANCE | COMPLIANCE | TRUST

Material footprint

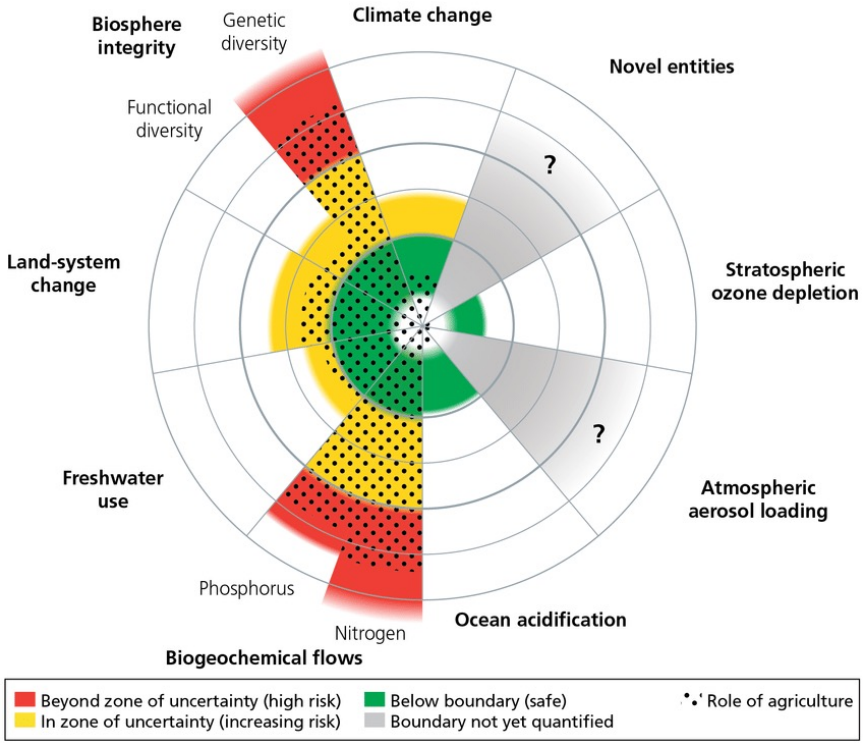


- Africa
- Middle East/Central Asia
- Asia-Pacific
- South America
- Central America/Caribbean
- North America
- EU
- Other Europe

◯ = 1 Earth

Global Footprint Network
Advancing the Science of Sustainability

Megatrends- Planetary boundaries

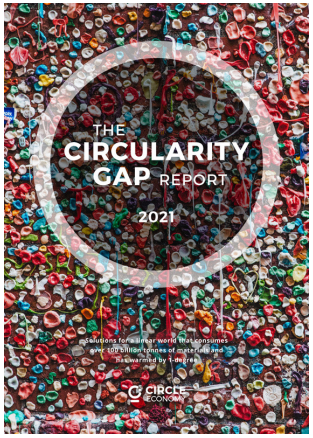


Material footprint

"Material footprint" refers to the total amount of raw materials extracted to meet final consumption demands.

Material use is outpacing population growth, and outpacing the growth in the economy

Circularity Gap



Last year, Circle Economy's Circularity Gap Report revealed that:

our world is only 8.6% circular, leaving a massive Circularity Gap.

The outlook is grim. Just two years ago that number was 9.1%.

Humanity has breached two severe milestones:

The world is consuming 100 billion tonnes (Gt) of materials a year

It is 1-degree warmer

How is the Gap measured?

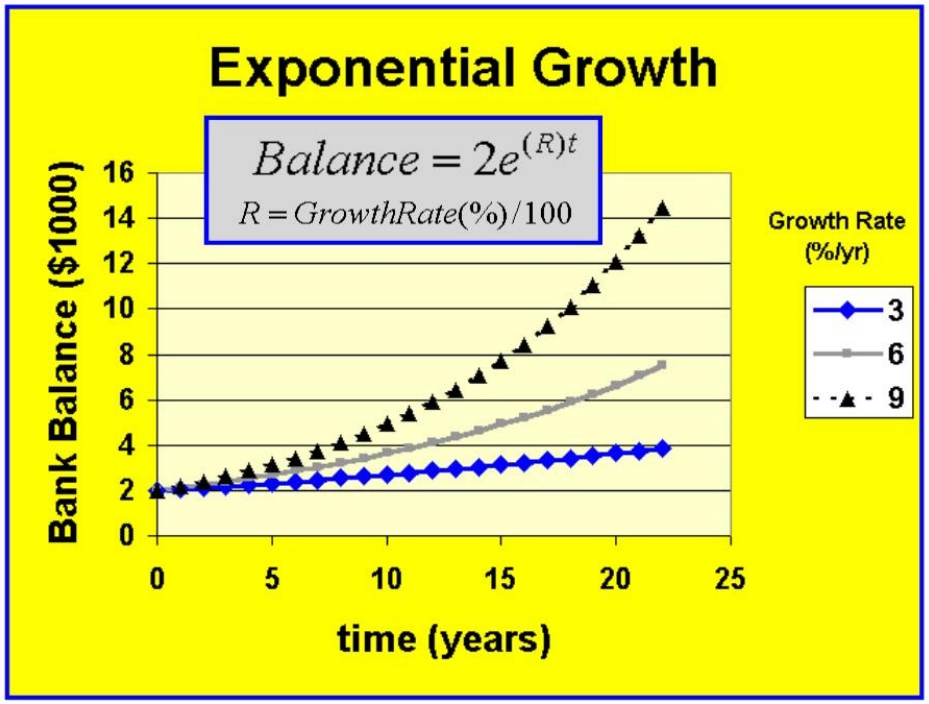
Why embrace the circular economy?

Organisational Level

- Cost savings
- New sources of innovation and revenue
- Improved resilience

Necessary for survival

Adaptation, transition to and alignment with the Circular economy is required for long term survival



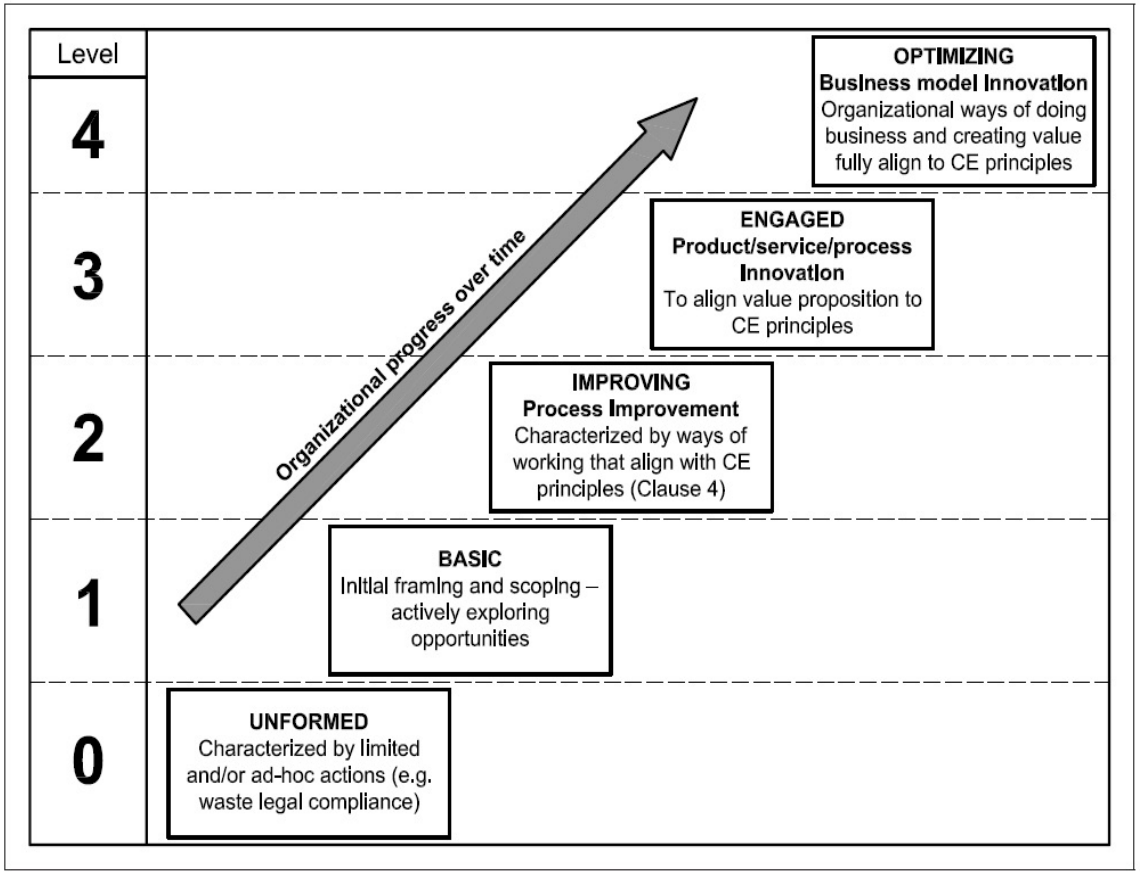
Elephants in the room

- Growth
- Material costs

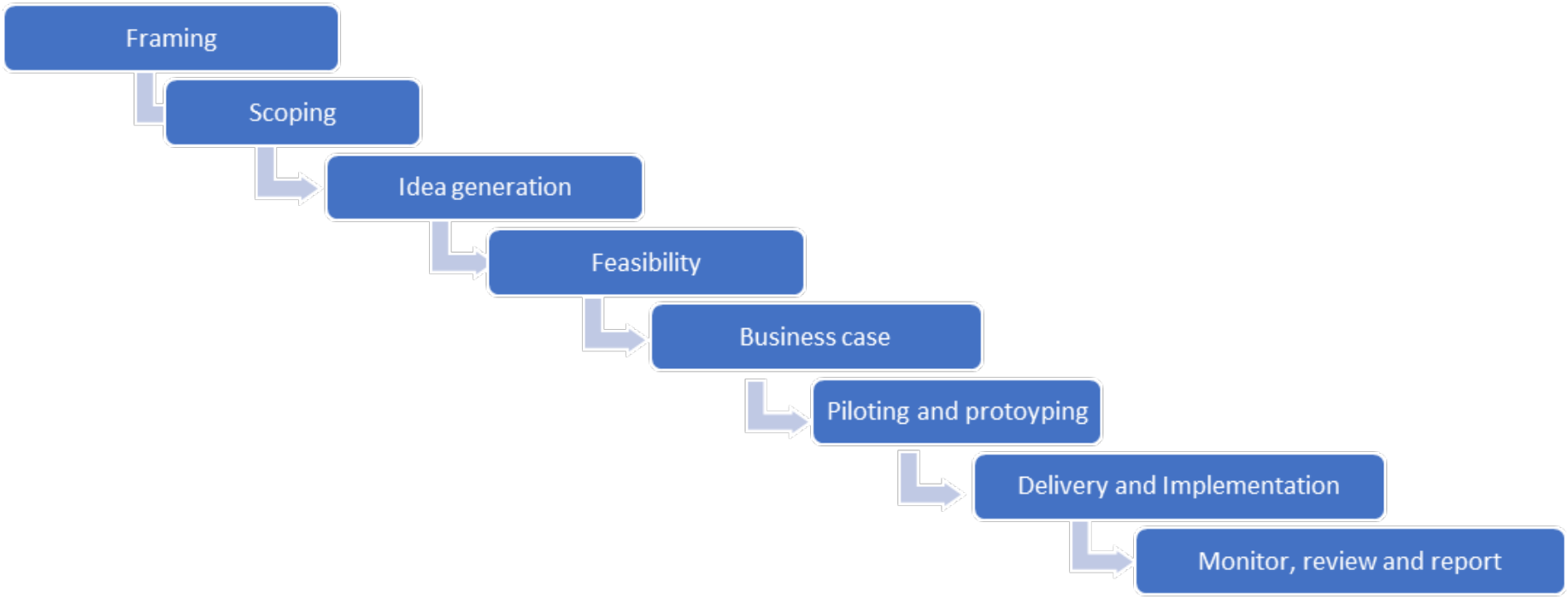
Organisational Circular Maturity

Progress over time

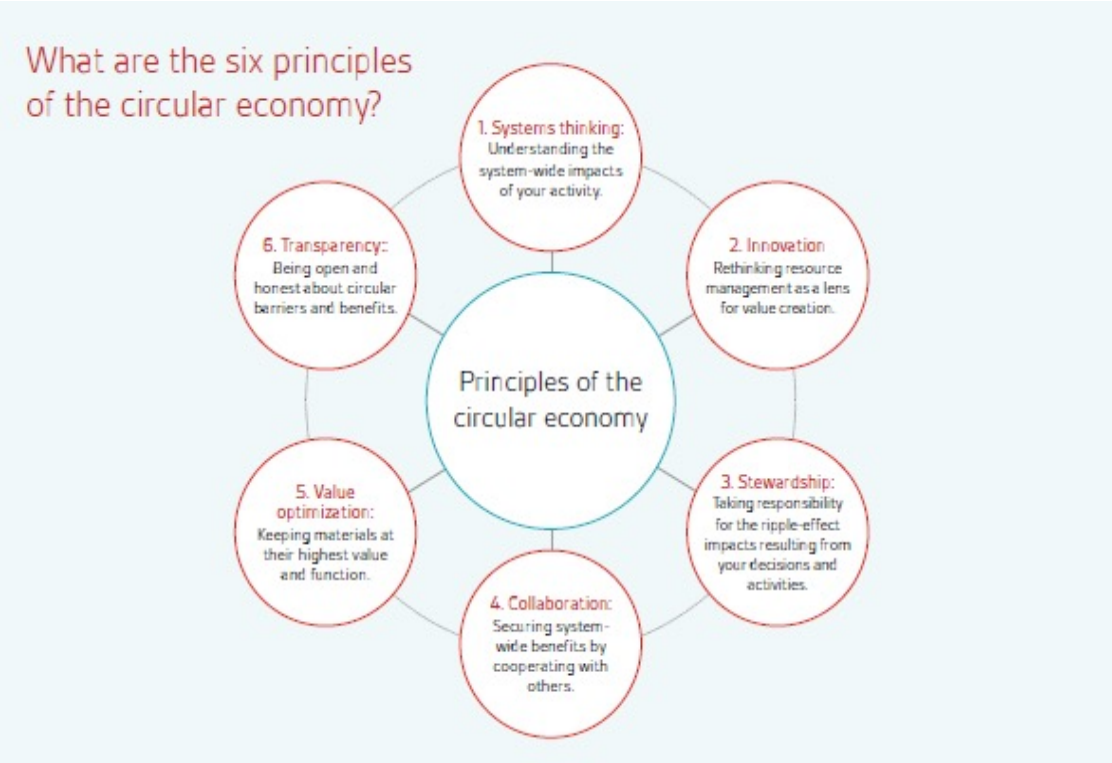
- Unformed
- Basic
- Improving
- Engaged
- Optimising



8 stage flexible framework- BS 8001:2017

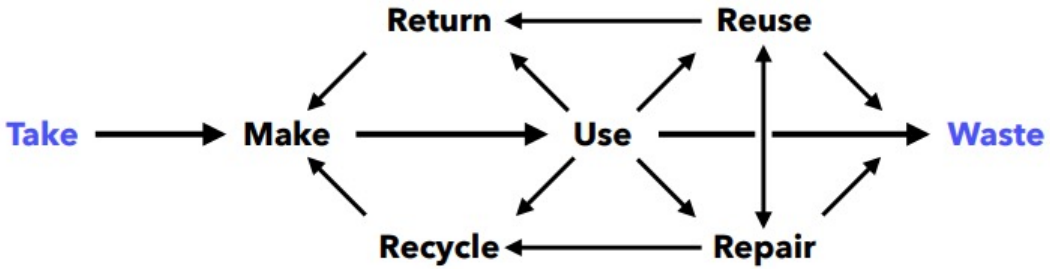


Principles of the Circular economy



- Systems Thinking
- Innovation
- Stewardship
- Collaboration
- Value Optimisation
- Transparency

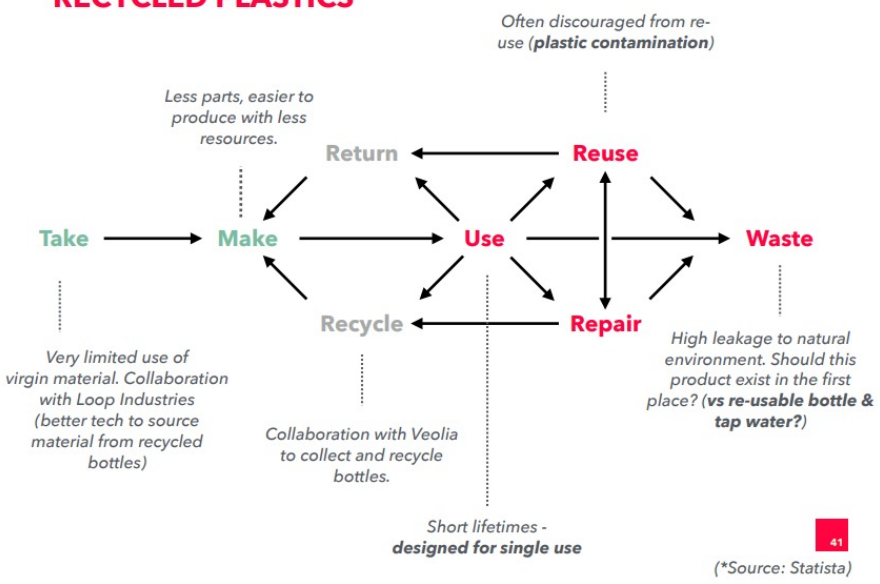
Introspection



board of innovation

Evian (Danone)

NEW LABEL-FREE BOTTLE DESIGN FROM RECYCLED PLASTICS



(*Source: Statista)

Product journey mapping

THE
CIRCULAR
DESIGN
GUIDE

WORKSHEET

Product Journey Mapping

A4

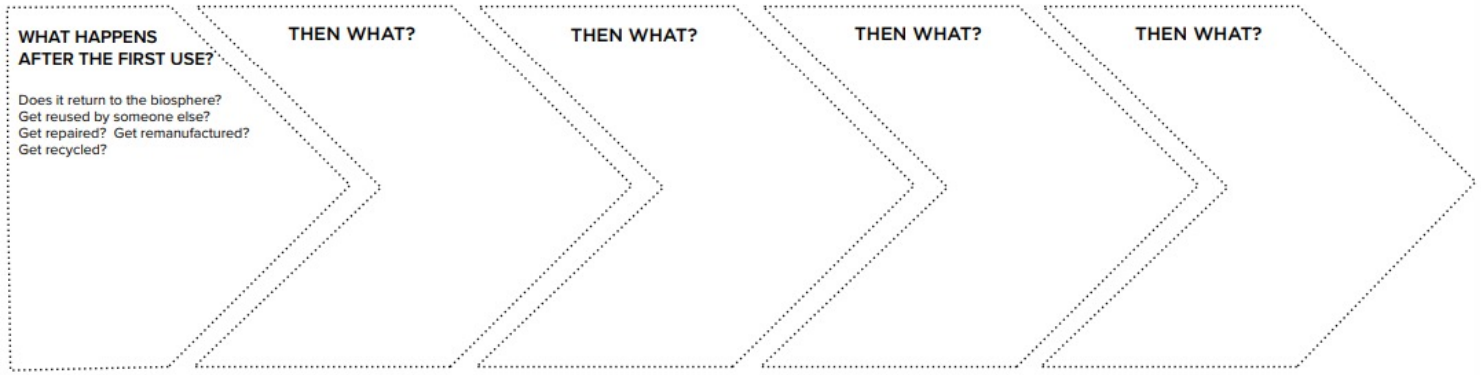
Keep asking what will happen next to your product or materials to help you map the use cycles of your product. Basically, pretend you're a five year old.

MY PRODUCT IS:

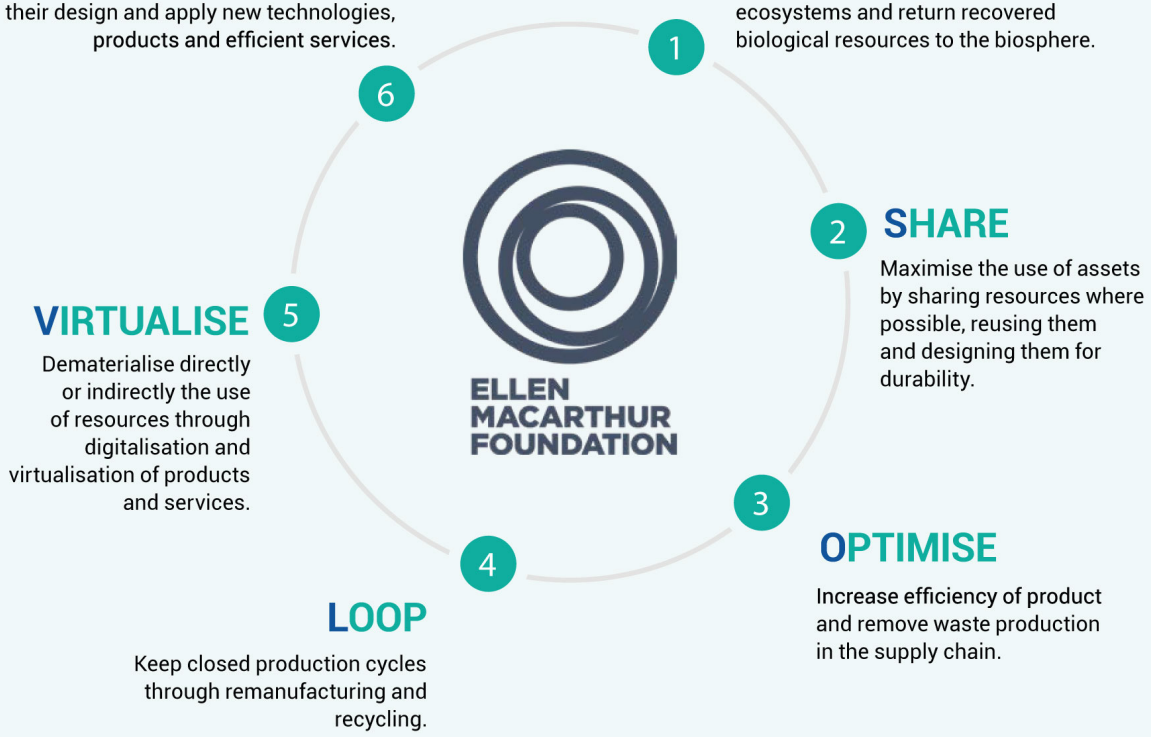
.....

INITIAL USE PHASE:
How long will it be in use for in the first use cycle?

.....



Idea generation- RESOLVE Model



Idea Generation – Circularity deck

1) Narrow (use less material and energy during design, production, delivery and use)

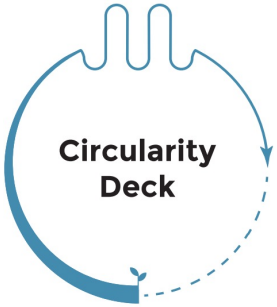
2) Slow (use products, components and material longer)

3) Close (Use wasted products, components and materials again)

4) Regenerate (Use non-toxic and biodegradable materials and renewable energy)

5) Inform (Use information technology to narrow, slow, close and regenerate material and energy flows)

www.circularstrategies.org



Narrow

Design with low-impact inputs

Product principle

Narrow

Design light-weight products

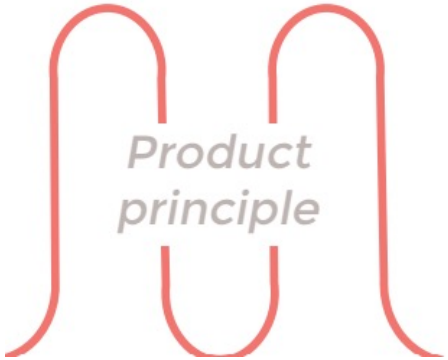
Narrow

Localize supply where appropriate

Business model principle

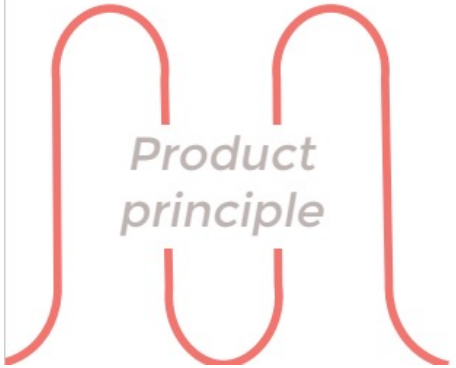
Slow

Design for physical durability



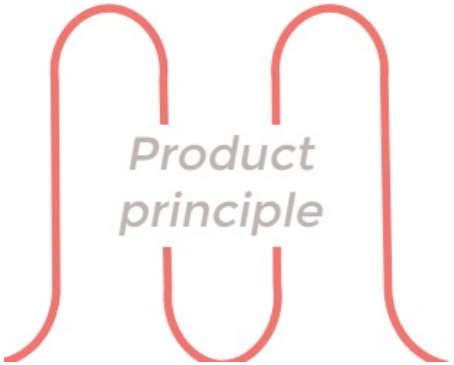
Slow

Design for ease of maintenance and repair



Slow

Design for standardization and compatibility



Slow

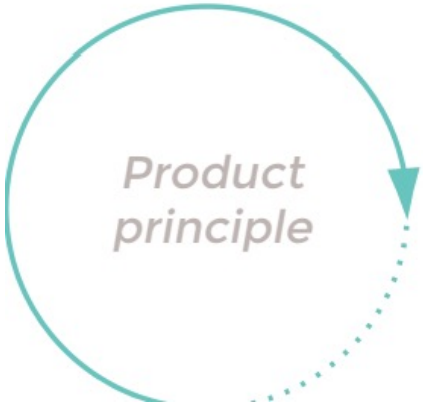
Provide the product as a service

Business model principle


Close
Design with recycled inputs
Product principle

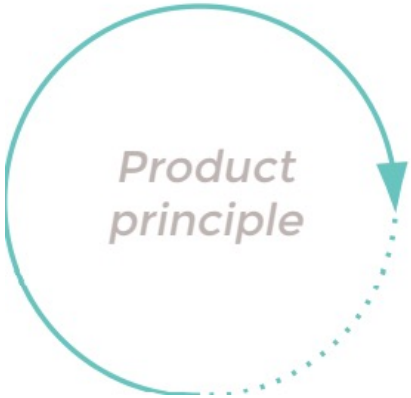
Close

Design components, where appropriate, with one material



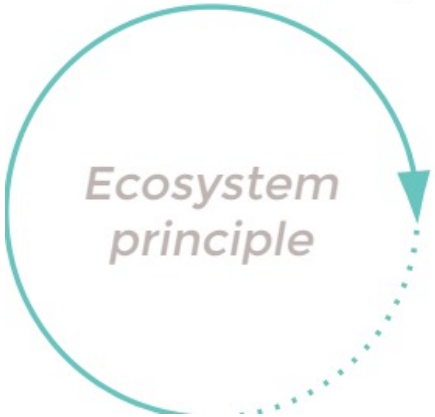
Close

Design with materials suitable for primary recycling



Close

Build local waste-to-product loops



Regenerate

Design with renewable materials

Regenerate

Produce and process with renewable energy

Business model principle

Regenerate

Manage and sustain critical ecosystem services

Ecosystem principle

Inform

Virtualize

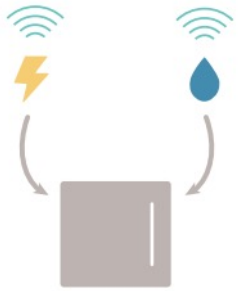
Product principle

Inform

Build material database ecosystems

Ecosystem principle

Inform

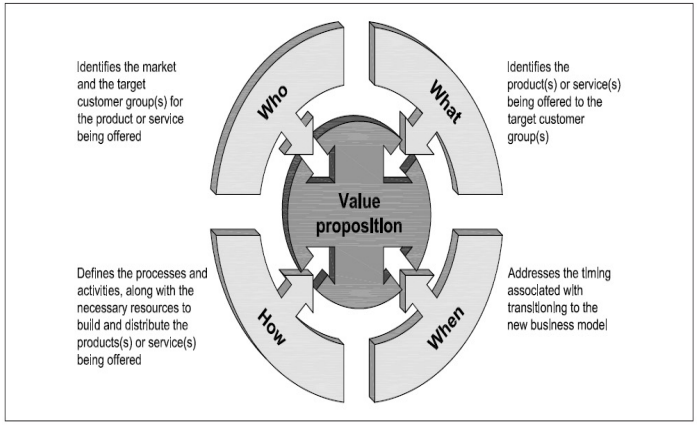


Track the resource intensity of the product-in-use

Business model principle

Business models and value propositions

- On-demand (made to order)
- Dematerialisation
- Product life cycle extension/reuse
- Recovery of secondary raw materials/by-products
- Product as a service/product–service system (PSS)
- Sharing economy and collaborative consumption.

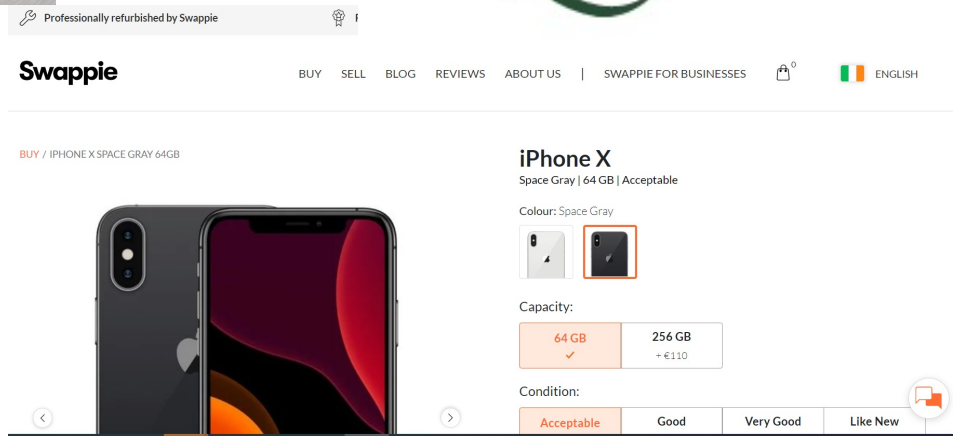


On demand

Dematerialisation

Product life extension/reuse

freecycle.org®



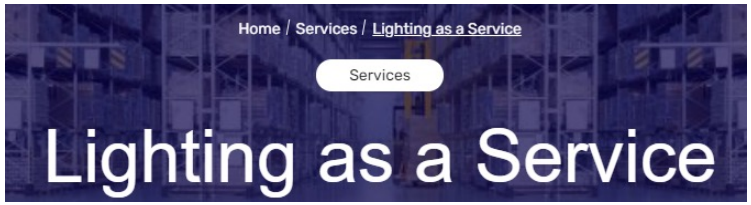
Recovery of secondary raw materials/by-products

M&S
EST. 1884

Product as a service/product – service systems (PSS)

- Lease agreement
- Performance based

URBANVOLT



GO CAR

Sharing economy/platforms & collaborative consumption

- Sharing economy
- Sharing platforms

TOOL LIBRARY

TURO

Barriers

- Convenience (lack of systems thinking and stewardship)
- Trust issues, (lack of transparency and collaboration)
- Value perception (should be able to create value for the customer through value optimization)
- Friction for change/inertia (may be tackled with innovation)
- Lack of knowledge/first movers - Collaboration, transparency and systems thinking can increase and share the knowledge needed to transition to circularity.
- Profitability/viability/financing

KPIs monitoring and review

	Take, Make	Return, Recycle	Use	Reuse, Repair	Waste
Increase	▸ % renewable energy in production & distribution ▸ % products designed with recyclability/repairability in mind	▸ % compliance with local recycling regulations ▸ # kg products/materials collected ▸ € value of products/ materials collected ▸ % purity of products/ materials collected ▸ availability of return points ▸ % products with a take-back program	▸ product lifetime (years) ▸ product utilization (%) ▸ # users sharing product	▸ $ value on secondary market ▸ % of products that can be upgrade to keep value over time ▸ # repairs executed (professional, consumer) ▸ availability of spare parts & repair information ▸ after sales service quality (NPS)	▸ % products captured as feedstock to downstream businesses ▸ $ value of products as feedstock to downstream businesses ▸ % data available: information on where installed base (products) ends up
Decrease	▸ % or # kg virgin material input (sourced from the environment) ▸ % or # kg waste to landfill in manufacturing	▸ # kg collected products to landfill or incineration ▸ $ cost of return ▸ $ cost and time sorting and processing	▸ $ cost of maintenance/ operating a product ▸ % year over year value depreciation ▸ % idle time ▸ # energy needed to operate ▸ emissions and environmental discharge ▸ # of products in the field (lower footprint)	▸ $ cost and time of repair ▸ # discarded products ▸ cost of spare parts (% compared to new)	▸ % products ending up in landfill ▸ % products incinerated ▸ % products discarded to nature

ANTARIS

GUIDANCE | COMPLIANCE | TRUST

Experts in Management Systems

Antaris Consulting, 5 Pery Square, Limerick, Ireland
t. +353 61 464 666 f. +353 61 464 667
e. info@AntarisConsulting.com w. AntarisConsulting.com