IMPACT HUB

Circularity Factsheet

All the information to get you started on the Circular economy topic

Circularity

Created: July 2022
Based on the Circularity Toolkit

Objectives

Looking for a funder for a circular economy sector-focused program? Wish to apply circular design principles to your project?

The objective of this factsheet is to provide you with key trends, major innovations, concepts and data from the IH network in just 20 mins. There are also additional links & sources to study further.

What will you find in this factsheet

List of charts

The current system is not sustainable for businesses, people or the planet.

We take resources from the ground to make products, which we use, and, when we no longer want them, throw them away. We must transform all the elements of the take-make-waste system: how we manage resources, how we make and use products, and what we do with the materials afterwards. Only then can we create a thriving economy that can benefit everyone within the limits of our planet. We need to change from this linear model into a Circular Economy. A Circular Economy is one that is restorative and regenerative by design (Ellen MacArthur Foundation).

Did you know that waste and pollution are largely a result of how we design things? Waste and pollution are not accidents, but consequences of decisions made at the design stage, where around 80% of environmental impacts are determined.

Circular economy is a powerful method consisting of principles and activities that aim to retain the value of resources, materials, components and products for as long as possible in the economy. It is a systemic approach to reducing the consumption of natural resources and to contributing to sustainable development. Looking beyond the current take-make-waste industrial model, a Circular Economy aims to redefine growth, focusing on positive society-wide benefits.

The circular economy is based on the three principles

Design out waste and pollution

Keep products and materials in use

Regenerate natural systems

Circular business models are different in how they organise value chains or look at ownership structures.

Put more simply: one company cannot be a circular business on its own. Companies need a system that facilitates their circular solution and until the entire economy is circular, it can be challenging to collaborate with linear companies and within regulations designed for a linear economy (read about Circular Economy legal challenges in this **article** about the Netherlands).

Circular business models are based on these 5 revenue models:

1. Circular supply chain, with a closed loop, depending on a strong logistics system (**Closing the Loop** to ECOR and Madaster)
2. Reuse (avoid waste streams, like **Ycloset**)
3. Product life extension (**Motorlan**, **MudJeans** and **Fairphone**)
4. Platforms for a Sharing Economy (**SnappCar**)
5. Product-as-a-Service (access to product, instead of ownership Philips **Signify** 'Light as a Service'.)

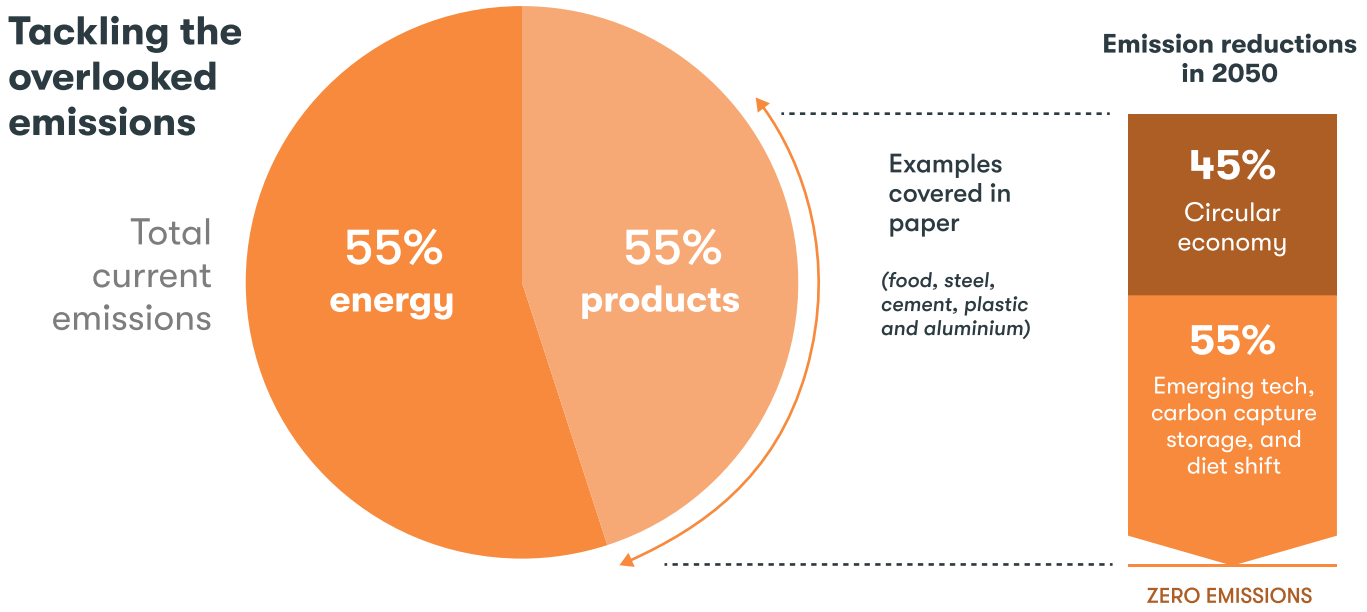
You can find a detailed overview of how businesses create circular business models **here**.

Working with startups that from day one have had the explicit intent of being a circular solution is very different from working with existing ventures to transform from a linear into a (more) circular model, each has their own strengths and could use different business strategies. Explore the work of SITRA that coined the names 'circular natives' and 'circular adapters' to learn more about possible strategies for each group.

It is the circular economy that can help tackle the CO2 emissions beyond those coming from the energy sector.

Ellen MacArthur Foundation calculates the benefits of a Circular Economy like this:

- **$700 mln** in annual material cost savings in FMCG sector
- **48% CO2** emissions reductions by 2030
- **$550 bln** in health care related cost savings in the food sector
- **€3.000** annual increase in disposable income for EU households
- **47%** reduction in traffic congestion in Chinese cities



Source: Ellen MacArthur Foundation, Completing the Picture.

This systemic change offers great opportunities, not only for the environment, for example by reducing CO2 emissions, but also for companies and households, for example by reducing costs, reducing health-related costs and creating jobs. The WRI summarizes the 5 opportunities of a Circular Economy very simply like this:

- Make better use of finite resources
- Reduce emissions
- Protect human health and biodiversity
- Boost economies
- Create more and better jobs

Opportunities for SMEs

The World Economic Forum released this report in 2021 about the opportunities for a Circular Economy in Africa for the African Circular Economy Alliance. According to this report the focus here should be on food systems, packaging, the built environment, electronics, and fashion and textiles. Be sure to also check out the great overview of Circular Economy case studies by Footprints Africa. And more scaleup case studies from WEF Circular Trailblazers.

Agrifood

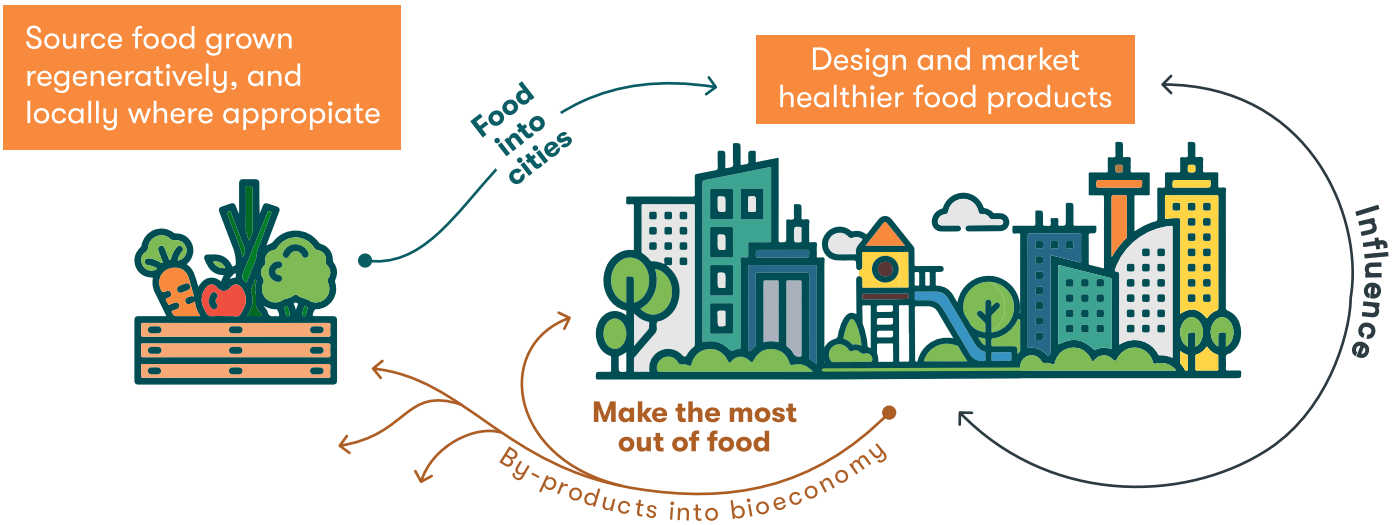
The agrifood sector can benefit greatly from a circular perspective, for example:

- Healthy soils through replenishment of nutrients and increasing biodiversity;
- Avoiding food loss through cold storage (for example Inspirafarms), cold chain logistics and processing/preserving (for example The Ketchup project);
- Collecting organic waste for composting or biogas (for example Lono).
- And an interesting development linking the agricultural sector to the construction sector is using agricultural waste like corn stalks in building materials, like ECOR.

There are three strategies that many entrepreneurs focus on:

More information on food and the Circular Economy can be found here.

- Closing material cycles in companies, so that waste and purchasing costs are reduced;
- Collecting waste streams, so that different fractions can be used separately and the whole increases in value;
- Adding value to waste streams, such as by the creation of new products.



Construction/ built environment

The construction sector consumes 42 billion tonnes of resources annually, making it the most material-intensive sector. The construction sector also produces about one-third of all global waste, most of which is not recycled or reused, but ends up in landfills (source: circle-economy.com).

There are two clear benefits from a circular construction industry:
(source: EMF)

1- Investing in renovating and upgrading buildings along circular principles can provide comfortable, adaptable, and positive impact results for the built environment sector.

2- Combined with building materials' reuse and recycling infrastructure, greater value circulation and effective use of resources can be attained, which would help lower the industry's burden on virgin resource consumption.

Important circularity topics in construction:

- Locally sourced sustainable materials (no plastic);
- Design for deconstruction for reuse of construction materials, or for changes in usage, such as the switch from office space to apartment buildings;
- Ownership of the building and/or the materials;
- Employee skills for circular construction: training for new jobs creation.

Inspiring examples of keeping track of materials in use in a building are Madaster (a buildings 'material passport' in the Netherlands) and platforms providing access to construction leftover materials in the Basque region, Spain, or in Berlin, Germany. In South Africa DigiYard is building the bridge between leftover, recovered or slightly damaged building materials and social building initiatives (for schools or in slums), an intrapreneurial initiative of ARUP in South Africa.

More information on trends in circular real estate can be found in the guide here

Fashion

Fashion is a major global industry, posing serious sustainability challenges. The numbers in EMF's 2017 circular textiles report are startling:

> *"Every second, the equivalent of one garbage truck of textiles is landfilled or burned. An estimated USD 500 billion value is lost every year due to clothing that's barely worn and rarely recycled. If nothing changes, by 2050 the fashion industry will use up a quarter of the world's carbon budget. As well as being wasteful, the industry is polluting: clothes release half a million tonnes of microfibres into the ocean every year, equivalent to more than 50 billion plastic bottles. Microfibres are likely impossible to clean up and can enter food chains."*

Often people don't realise that many textiles actually contain plastics, which is why it is important to either use different materials or consciously work with textile waste and how it is separated and reused.

Circular models include reusing clothes via a sharing platform (like Ycloset in China with millions of users) or post-consumer waste recycling into 'virgin' yarns (like Loop-a-life for clothes, Reblend for interior design in the Netherlands, or Vegea Company from Milan producing bio materials for a fashion industry). Or have a look at an innovative idea of DRESSX that does virtual clothes for bloggers.

More information about fashion and the Circular Economy can be found here.

Fashionscapes: A Circular Economy

Watch the 17-minute film about the fashion's chance to embrace circularity

Electronics

Electronics have transformed the way we live and work. Today's global consumer electronics market is worth an estimated US$1 trillion, and it is projected to continue growing. They have already become the world's fastest-growing waste stream, amounting to an estimated 57.4 million tonnes in 2021.

This "waste" stream contains prematurely discarded products and raw materials valued at nearly $60 billion. Despite this, less than 20% of global e-waste is formally collected and recycled. The rest is sitting in our drawers, attics, or ends up in waste dumps where they are burned, dismantled, or melted without proper equipment or protection, leading to severe environmental pollution and health hazards. Many who rely on e-waste management for their incomes work in the informal economy, in unsafe working conditions with limited opportunities to improve their livelihoods.

In the technical sphere of the Circular Economy it is easy to see all the steps of the 'R-ladder', including repair, refurbishment, modular design, design for separation of materials for reuse and recycling, for example FairPhone and Closing the Loop. Not only phones and computers, but also household appliances are interesting topics and don't forget about logistics for example with electronic cargo bikes or tuktuks. Large brands have been leading the way introducing access to product, instead of ownership Philips Signify 'Light as a Service'.

While opportunities are everywhere in the manufacturing industry, there are three strategies on which many entrepreneurs focus:

High quality recycling, so that there is no outflow of materials, including critical raw materials.

Optimising use, so that products can be used for longer.

Developing new business models, so that the focus of propositions is not on the product, but on the function.

Waste / plastics

Waste is often described as a design problem, but it is also a problem linked to policies, logistics and markets, such as when waste is being shipped to developing economies.

A complicating factor in working with waste, is that it is usually a mix of lots of different materials. While it can be challenging to collect one waste stream and energy-demanding to recycle it, it is even harder to separate waste into pure streams. Look at plastics: plastic products are often actually also a mix of various types of plastic materials.

Plastics can be found in all sectors of the economy; not only in packaging, but also in textiles for example, or in the agricultural sector. Plastics are used everywhere but the challenges are not spread equally. Some countries export the waste stream, and look at what happened when plastic waste could no longer be shipped to China. This clearly showed many governments that exporting waste for recycling is not a perfect solution and we need alternative solutions upstream. When we can avoid using plastic, or replace single-use plastic with alternatives, and expand the use-life of plastic products, we make a big win. In many locations waste collection and separation is improved. This is important to avoid plastic waste leaking into the environment.

There are five strategies on which many entrepreneurs and administrators are focusing in order to achieve a circular application of plastics:

1. Avoiding unnecessary use by handling plastic products and packaging as sparingly as possible.

2. Designs for reuse, such as a mug that can be used instead of a quantity of disposable cups.

3. Designs for high-quality recycling of products or packaging, such as plastic trays made from mono materials.

4. Targeted collection, sorting and recycling of plastic, so that it can be reused at a high quality level.

5. Business models for optimal use, such as renting products instead of selling them.

There are many examples of initiatives tackling plastic waste challenges. For example, look at Sweepsmart and their waste centers in India and Indonesia where waste pickers became waste managers. Much discussed these days are the plastic eating bacteria, here is a quick review on the topic by Forbes.

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Our Ambition for 2030 is to shape the business of the future by pioneering new models to foster financial health, wellbeing, climate action and social inclusion in all that we do. Accelerating the transition to a circular economy that respects planetary boundaries will help realise this ambition, acknowledged and supported by our Environmental Strategy.

Impact Hubs have got a significant track record in the topic of circularity. Thanks to the initiatives that have been running for several years our network gathered and analysed the experience, a few makers put it together in the Circularity Toolkit for other Impact Hubs and community partners that aim at starting up their work on this topic. Here are just a few examples of our network's projects that may be called systemic interventions for their scope, reach and impact.

Circular Economy Transition
Impact Hub Switzerland

Circular Economy Transition is a pioneer initiative that aims to accelerate the transition of Switzerland to a Circular Economy in a systematic way, with the support of MAVA Foundation. It consists of an incubation program, series of community events, and a platform for corporates and SMEs that supports them in implementing circular business models.

E-waste project
Impact Hub Accra

Impact Hub Accra and Siemens launched first 50 electric logistic vehicles 'Made in Ghana' powered by refurbished batteries coming from e-waste. The project team is simultaneously developing a financing system that aims to make the electric cargo bikes available to socioeconomically disadvantaged sections of the population.

Business model challenge
Impact Hub Amsterdam

An incubation program where founders can develop their idea into a business in 12 weeks. Although a general incubator, circularity is often the topic that the founding teams work with.

Transforma Hackaton
Impact Hub San Jose

Brings together creative minds to find digital, collaborative and innovative solutions to the data challenges of the solid waste value chain through 4 virtual workshops, using digital tools to formulate solutions.

What can Impact Hubs do?

Circularity

1. Current ambition of our network in the topic of circular economy is to pass on the knowledge within our network as well as to our community partners to other players in the society so that many of entrepreneur support organisations may run circularity initiatives.

2. Secondly, we could utilise our experience with circularity initiatives in other topics within the environmental strategy which are agriculture/food and net zero/energy.

3. Thirdly, there are quite a few entrepreneurs out there that could embed circularity principles within their traditional business models, and some Impact Hubs are pioneering this approach for regular SMEs.

4. And finally, circular topics being relevant for several large industries usually attract corporate partners on board, this is the opportunity to increase corporate sales at Impact Hubs.

Sources

- Impact Hub Network's Circularity Toolkit
- **Brochure** by Circular Economy Transition
- **https://ellenmacarthurfoundation.org**
- **SITRA**
- Resources of the World Economic Forum and EMF
- More resources on circularity can be found in the network's toolkit and this factsheet related to specific examples and articles.

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