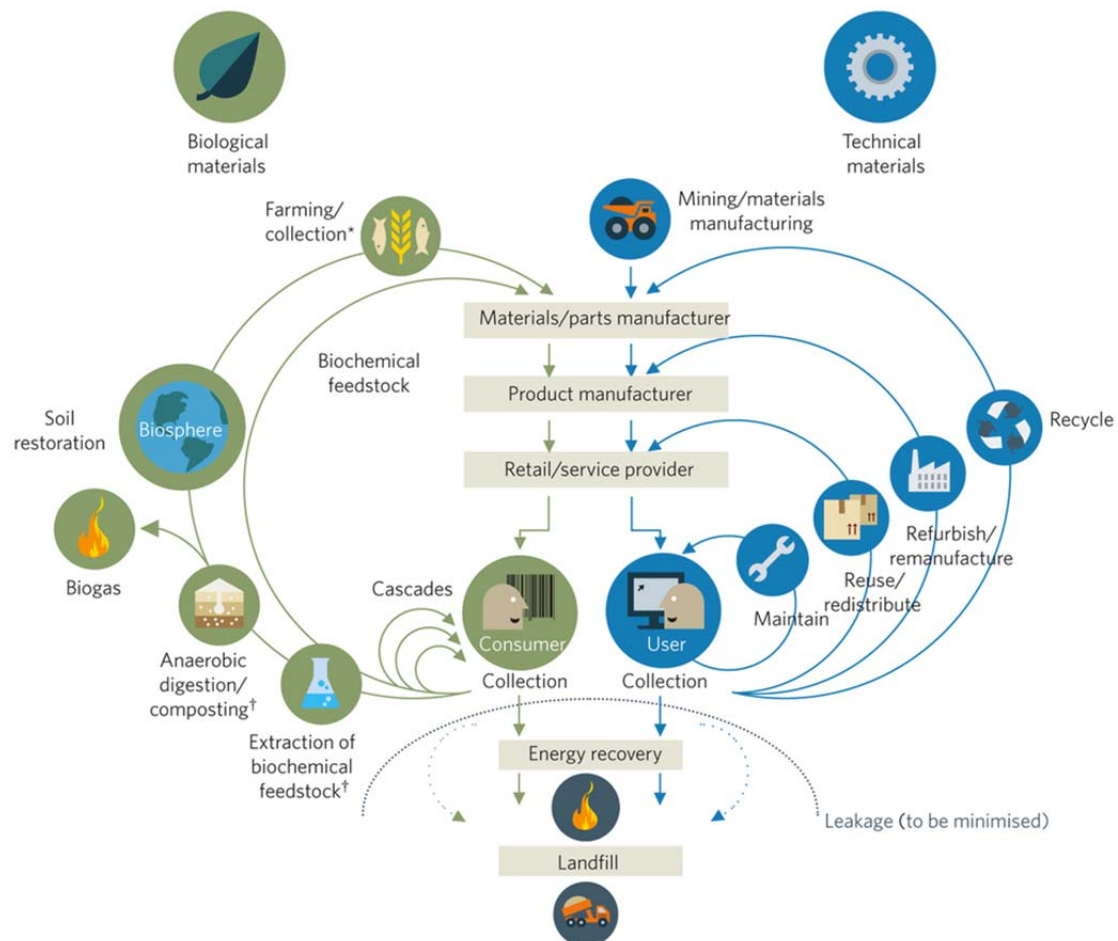


Industrial Ecology and Circular Economy: From Theory to Practice

Written by Renata Jendrolovits

The term “circular economy” is one of the most recent buzzwords used in the sustainability community, and though it has been around for a while, its practical implementation is not widespread yet. But as we are reaching the limits of our natural resources and of our planet’s capacity to intake waste and pollution, this approach is getting more attention and relevancy. David Rochat, the CEO of [Sofies International](#), gave the audience an interesting insight on what circular economy means and how it works in practice.

The circular economy is a generic term for an economy where the concept of waste itself doesn’t exist, materials circulating through technical and biological cycles. The circular economy system is well described by the picture below (Source: Ellen MacArthur Foundation).



Industrial ecology is also concerned with the shifting of industrial processes from linear (resource becomes waste) to closed loop systems (resource becomes input for new processes), and relies on four operational strategies:

1. Closed material cycles – as in the circular economy model
2. Minimize losses throughout the industrial system
3. Dematerialize by promoting functional economy models, eco-design and technology developments
4. Decarbonize by developing renewable energies

During his presentation Mr Rochat shared a few examples of circular economy and industrial ecology.

One of them was the [Kalundborg](#) eco-industrial park in Denmark, where the different companies and factories live in a special industrial symbiosis with each other, inspired by the functioning of natural ecosystems. By exchanging material wastes, energy, water, and information, the park works as an industrial ecosystem, allowing for reduced cost and their environmental impact.

Another interesting case study he shared was about the management of waste electric and electronic equipment, comprising both valuable and hazardous materials, that is largely managed by the informal sector in developing countries. In Ghana for example there are huge slums, where people make a living from such waste, but cause themselves industrial scale of pollution by rudimentary recycling practices. Sofies International helps turning waste into resources and foster social and economic development as well. Through the approach of circular economy the poorest can be integrated into the global economy and such informal activities can become business opportunities.

By taking a step back and looking at the production processes from a broader perspective that takes into account the whole system we are part of. circular economy and industrial ecology offer a positive conceptual framework and operational strategy for economic development in a more conscious approach towards the use of our natural resources.