

GLOSSARY / DEFINITIONS



Circularity by evolution is the principle that governs nature.

The first publications applying nature's circularity principle to the industrial economy were:

- ☑ 'The Economics of the Coming Spaceship Earth' (Boulding K.E. (1966). In: Environmental Quality in a Growing Economy, essays from the sixth RFF Forum, edited by H. Jarrett. John Hopkins University Press).
- ☑ 'The Potential for Substituting Manpower for Energy' (Stahel W.R. and Reday-Mulvey G. (1976), report to the Commission of the European Communities Brussels. published (1981) Vantage Press N.Y., N.Y.
- ☑ 'The Product-Life Factor' (Stahel W.R. (1982) Mitchell Prize competition, HARC, Houston, TX).
- ☑ 'Strategies for Manufacturing', Frosch, R. and Gallopoulos N. (1989), Scientific American 261(3):94102.



Circular Economy (CE)

A profitable economic system designed to create jobs and eliminate waste by keeping stocks of products, components and materials at their highest utility and value at all times, through service-life extension loops of objects and by closing resource loops. A 'loop' is defined as the recapturing and reuse of a resource to maintain and/or increase its value.



CSR (Corporate Social Responsibility)

A flexible, self-regulating, and broad concept designed to hold a business accountable to itself, stakeholders and the general public by contributing positively to society and the environment. Embodied Resources Quantifying the material, water, energy input and CO2 emissions that went into producing an object from extraction to point of sale, and which are preserved throughout service-life extension activities.



Industrial Ecology (IE)

Also known as 'industrial symbioses', IE quantifies the flow of materials and energy in industries, supply chains, facilities, cities, nations and the globe. IE provides systematic evaluations of environmental impact from cradle to grave using such tools as life cycle assessment (LCA). The 1989 publication Strategies for Manufacturing by Frosch and Gallopoulos is credited as marking the beginning of IE as a research field. (Bocken, Nancy et al (2017) 'Taking Circularity to the Next Level', Journal of Industrial Ecology, DOI: 10.1111/jiec.12606)



Externalized Costs

Financial debt that is generated by a business and off-loaded onto the general public to maximize profits for the business. For example: a business emits waste (in the form of air, land or water pollution) that results in health and other financial problems for employees and/or nearby communities; if the situation becomes untenable, the clean-up is funded by government (taxpayers).



Greenwashing

The deliberate distortion of the truth to make false environmental claims.



Net-Zero Waste

A negotiable term that enables waste to be off-set (but not eliminated) through positive actions. For example, a business produces greenhouse gases and claims to off-set these emissions by planting trees or doing similar philanthropic work. See also 'Zero-Waste' (below).



Performance Economy

A term defined and first used by Stahel in his 2006 book *The Performance Economy* (Palgrave MacMillan), which includes corporate strategies of producing performance, selling performance and maintaining performance over time and describes business models of OEMs and fleet managers selling the performance or guaranteed function of objects instead of selling the objects, and selling objects and molecules as a service (e.g. rental, leasing). By retaining ownership and liability over the full service-life, economic actors internalise the costs of risk and waste. Fleet managers apply the CE principles as well as sufficiency and systems solutions to maximise the use of stocks, and generate economic revenue by minimising risk, waste and resource consumption.



Service-Life Extension Activities

Circular economy strategies designed to reuse, repair, and remanufacture objects and to recover atoms and molecules in order to prevent waste. The term 'product-life extension' (also known as 'resource-life extension') was first used 1982 by Walter Stahel in his Mitchell Prize winning article 'The Product-Life Factor'. Policymakers first defined service-life extension as priority action to prevent waste through policymaking in the EU Waste Directive 2008. In 2009, the terms reuse, remanufacture, reconditioning and recycling were defined in the British Standard BS887-2.



Sustainability

The capacity to continue into the long-term, the ability of which is dependent on how social, economic and environmental factors interact. The concept of sustainability is quite old. For example, Native Americans followed the principle that "In all endeavours, consider the impact on the next seven generations", which is the essence of sustainability. Modern use of the word 'sustainability', or "Nachhaltigkeit" was first used 1713 in a publication by Hans Carl von Carlowitz in charge of the mining industry in Saxony (Germany), who recognised the threat of a scarcity of timber for the local mining and metallurgy sector and declared maintaining the forest capital as economic priority: only so many trees could be cut annually as were replanted. German foresters then adopted the term for their long-term business strategy, passed it on to British foresters who shared this philosophy, translated it to sustainability and took it with them to the USA.

Background: The UN's first major conference on the Human Environment was held 1972 at Stockholm and marked a turning point in the development of international environmental politics.

Principle 1 stated that people have the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and that we bear a solemn responsibility to protect and improve the environment for present and future generations. The 1992 U.N. Conference on Environment and Development held in Rio de Janeiro, focused on the impact of human socio-economic activities on the environment and highlighted how different social, economic and environmental factors are interdependent and evolve together, and require action to be sustained over time. It implicitly mentioned sustainable development and politicised the term.



Waste

Legal definitions vary between nation-states, the EU and the US Environmental Protection Agency. In business terminology, 'waste' is often described as 'not achieving 100% of purchases and investments'.



Waste Elimination (eliminating the wastage of energy, water, and resources in manufacturing and agriculture)

A profitable application-based process designed to eliminate and prevent unneeded expenses by focusing on the profitable implementation of resource optimization and replenishment; described by Jonathan Scott in his work (e.g.: *The Sustainable Business* and related texts, 2007, 2010, 2018), and based on the work of Walter Stahel, as the process of removing unneeded inputs in production systems at all stages from extraction (e.g.: mining, farming, etc) to the point of sale and afterward (customer usage), for the purpose of maximizing efficiency, reducing resource use, lowering costs and increasing profits. In business terminology this is translated as '100% of inputs equalling 100% of outputs' (i.e.: 100 tons of resources produce 100 tons of products). Note: Much of Scott's work is based on the observation that businesses successfully implementing CE principles unanimously agree that waste elimination should be introduced into operations and systems before CE practices are applied.



Waste Management

The last phase of the linear industrial economy, the process of organizing the disposal or elimination of waste by third parties.



Waste Prevention

Often seen as a synonym for CE, waste prevention strives to eliminate future waste and costs by designing objects (and inventing materials and molecules) that can easily be reused, repaired and remanufactured continuously for as long as possible.



Zero Waste (or Zero Carbon)

A state in which a business has successfully eliminated both its present and future waste. Zero waste is notoriously difficult to prove because of the broadness associated with supply and distribution chains connected to a business and the inherent waste within the businesses that comprise these chains.

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