

Sustainability-related concepts that encompass 'doing more with less'

Circular Economy

"The linear 'take, make, dispose' model relies on large quantities of easily accessible resources and energy, and as such is increasingly unfit for the reality in which it operates. Working towards efficiency—a reduction of resources and fossil energy consumed per unit of manufacturing output—will not alter the finite nature of their stocks but can only delay the inevitable. A change of the entire operating system seems necessary."

Source: <http://www.ellenmacarthurfoundation.org/circular-economy/circular-economy/the-circular-model-an-overview> (Accessed 28/07/2015)

Decoupling

"**Resource decoupling** means reducing the rate of use of resources per unit of economic activity.

Impact decoupling means maintaining economic output while reducing the negative environmental impact of any economic activities that are undertaken. **Relative decoupling** of resources or impacts means that the growth rate of the resources used or environmental impacts is lower than the economic growth rate, so that resource productivity is rising. **Absolute reductions of resource use** are a consequence of decoupling when the growth rate of resource productivity exceeds the growth rate of the economy."

Source: http://www.unep.org/resourcepanel/Portals/50244/publications/Decoupling_Factsheet_English.pdf (Accessed 28/07/2015)

See also: von Weizsacker and Lovins (1998), Factor Four: Doubling Wealth, Halving Resource Use - The New Report to the Club of Rome Paperback, Routledge

Dematerialization

"Reducing the total material that goes toward providing benefits to customers. May be accomplished through greater efficiency, the use of better or more appropriate materials, or by creating a service that produces the same benefit as a product."

Source: <http://www.sustainabilitydictionary.com/dematerialization/> (Accessed 28/07/2015)

"A dematerialisation strategy means moving to an industrial model that reduces dependency on resources. The only viable way to do this in the long term is to shift to renewable energy and to optimise the circular economy. Hence, anything we can do to decouple economic growth from environmental impacts is a step in the direction of greater resilience."

Source: <http://www.theguardian.com/sustainable-business/business-survive-volatile-world-resilience> (Accessed 18/08/2015)

Eco-efficiency

"delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life-cycle to a level at least in line with the Earth's estimated carrying capacity."

Source: <http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=13593&NoSearchContextKey=true>

Eco-effectiveness

“The central strategy in the cradle-to-cradle development method and seeks to create industrial systems that emulate healthy natural systems. The central principle of eco-effectiveness is that “waste equals food.” The concept was developed in response to some of the perceived limitations of eco-efficiency which critics claim only slow down the rate of environmental depletion and don’t reverse the production of unused or non-recycled waste.”

Source: <http://www.sustainabilitydictionary.com/eco-effectiveness/> (Accessed 28/07/2015)

Constraints are also a feature of lean manufacturing, which may be deployed for purposes besides or in addition to the pursuit of sustainability:

Lean Manufacturing

“Doing more with less by employing 'lean thinking.' Lean manufacturing involves never ending efforts to eliminate or reduce 'muda' (Japanese for waste or any activity that consumes resources without adding value) in design, manufacturing, distribution, and customer service processes. Developed by the Toyota executive Taiichi Ohno (1912-90) during post-Second World War reconstruction period in Japan, and popularized by James P. Womack and Daniel T. Jones in their 1996 book 'Lean Thinking.' Also called lean production.”

Source: <http://www.businessdictionary.com/definition/lean-manufacturing.html#ixzz3hCYB0BTX> (Accessed 28/07/2015)

“The Lean concept of the value chain is likely to emerge as an essential tool for the frugal approach.”

Source: <https://www.industryforum.co.uk/resources/articles/is-lean-frugal/> (Accessed 28/07/2015)