



Proceeding Paper

Combining the Circular Economy, Doughnut Economy, and Permaculture to Create a Holistic Economic Model for Future Generations [†]

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Abstract: The Circular Economy (CE) is an economic system that integrates economics and the environment to offer a model of sustainability and business opportunity. Whilst the CE has the potential to benefit society, there is a lack of the social aspect being integrated into the current framework. Combining the CE with additional concepts, such as the Doughnut Economy (DE) and Permaculture, creates a more holistic, sustainable approach that aligns with the three pillars of sustainable development: social, environmental, and economic. Bringing together the concepts of the CE, the DE, and Permaculture offers a potential framework that acts as a guideline for businesses and future economic policies to be both environmentally sustainable and socially beneficial. Combining these relevant concepts leads to the development of a future CE that has strong ties to the socially focused Sustainable Development Goals (SDGs) and offers a holistic economic model that is more sustainable for future generations.

Keywords: circular economy; doughnut economy; permaculture; sustainable development; environmental economics; sustainable development goals; sustainability



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1. Economics Today

In order to discuss the current economic model, it is important to understand how economics is defined. Whilst there is no unanimous definition of economics, a commonly accepted explanation is that of Robbins [1] (p. 16), who defines economics as:

“the science which studies human behavior as a relationship between ends and scarce means which have alternative uses.”

Others have also defined economics as:

“a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of well being.” [2] (pp. 1–2)

As well as a:

“social science that studies the choices that individuals, businesses, governments, and entire societies make as they cope with scarcity.” [3] (p. 5)

When looking at these three definitions of economics, there are two things that stand out. Firstly, all three definitions mention society and the human dimension (human behavior, social action, societies), secondly, they all mention scarcity and the requisites needed for wellbeing. How scarcity is defined (financial scarcity or resource scarcity) is up for interpretation, but it is not hard to see the link between the scarcity mentioned in these economic definitions and the increasing scarcity of natural resources as a result of the current linear economy.

These definitions appear to suggest that an economic model should consider society and human behaviour in response to the scarcity of resources, yet the current economic model focuses strongly on economic scarcity and how to overcome this whilst ignoring the social aspect of society or the question of resource scarcity. The current economic model puts economic development at the core of business and decision making, often at the expense of the environment and society. This linear model includes three short and destructive stages: take, make, and dispose. It is a model built strongly on fossil fuel inputs, resulting in massive natural resource losses and natural capital depletion [4]. According to the ARUP report '50 Scenarios: four plausible futures', we are on the road towards 2050 being "shaped by three decades of gradual societal improvement, coupled with half-hearted environmental stewardship" [5] (p. 48). This is a future in which, by focusing purely on economic growth, both people and the planet suffer.

The top countries in the world for economics are measured by their Gross Domestic Product (GDP) [6]. When a country's economy is measured simply in terms of its GDP whilst disregarding other factors that strongly contribute to its success and wellbeing, is this an accurate representation of a country's true economics? It is not to say that financial stability is not important, but rather that economics and success should also be measured in terms of a country's ability to cope with resource scarcity, including natural resources, and the wellbeing of society. When considering economics in these terms, an economical model should clearly align with the pillars of sustainability: social, economic, and environmental.

2. The Circular Economy

The Circular Economy (CE) is an alternative economic model that focuses on economics and the environment by using cascades and feedback loops to offer an economic model of sustainability and business opportunities [4]. The CE is growing in popularity and momentum and is being adopted across countries, governments, businesses, and institutions, as shown by the EU Circular Economy Action Plan [7], the Circularity Gap Report [8], and the Ellen MacArthur Foundation [9,10].

Cascades and feedback loops allow biological materials to return to the biosphere whilst maximising the value of technical materials and reducing raw material demand through maintenance, reuse, and refurbishment [4]. These loops encourage innovation and increase business opportunities and value creation whilst reducing harm to the environment. A core underlying contributor to the CE is natural capital and the importance of nature within economics [11]. Nature is integrated into the economy by increasing the productivity and life cycle of raw materials and natural resources and shifting towards renewable energies [4,12,13]. In contrast to the linear economy, the CE introduces an economy in which success is measured economically and environmentally [14].

Whilst the CE offers an economic model that integrates the economic and environmental pillars of sustainable development, there is a lack of integration of the social pillar. Murray [15] suggests that social justice and a social dimension should be at the heart of sustainability; however, there is currently no focus on society nor a future suggestion of how the CE could lead to social equality. According to Schroeder [16], the CE has strong relationships with specific Sustainable Development Goals (SDGs) (6, 7, 8, 12, 15), all of which fit closely with the pillars of economy and environment. However, the CE has no links to SDGs 3, 5, 10, 11, and 16, all of which are under the social pillar of sustainability. In addition, research by Padilla-Rivera [17] suggests that social aspects relevant to strategies and impactful actions are not promoted within the CE framework and that without the integration of the social aspect, it is not certain whether the CE is more sustainable for future generations than the current linear model. Padilla-Rivera's review of the CE demonstrates that there is no consensus on an appropriate framework that integrates the economic, social, and environmental aspects, and it is suggested that further studies "should define and specify how to measure social indicators and how [CE] practices can improve human well-being in society" [17] (p. 13). Due to this, it can be concluded that, by integrating the

environmental aspect, the CE offers a huge advancement to the current linear economic model; however, for a fully holistic model, the societal pillar needs to be considered.

3. The Doughnut Economy

The Doughnut Economy (DE), developed by Raworth [18], offers an alternative economic model that is inclusive and sustainable. The DE aims to bring together social and environmental aspects into an economic framework to support the development of a thriving world for both people and the planet through the introduction of boundaries. To bring the social side into the economic model, the DE suggests there are societal boundaries, based on the SDGs, which society should stay within in order to meet the needs of all people. The model brings the environment into economics by suggesting that there are planetary boundaries that cannot be crossed in order to ensure that our economic growth is not at the expense of the planet. According to Raworth [19] (p. 217):

“Last century’s adopted policy goal of never-ending Gross Domestic Product (GDP) growth has been leading us far off course, resulting in economies that are degenerative, running down the living world on which human wellbeing fundamentally depends, and that are also divisive, enriching the 1 per cent at the expense of the rest.”

This model is a stark contrast to the current linear economic model that focuses purely on financial economics and GDP by creating a model that puts people and the planet at the center. The DE asks the question:

“How can our city be a home to thriving people, in a thriving place, whilst respecting the wellbeing of all people, and the health of the whole planet?” [20]

and is responsible for a global transformation of cities, governments, and countries [21].

Whilst the DE is clearly influential in creating a holistic model that is built around society, coping with scarcity, and living within planetary boundaries, it is currently limited to application within the business context. The Doughnut Economics Action Lab [22] currently only allows businesses to use the DE as an internal tool in the organisation of the business. This aims to avoid greenwashing and encourage businesses to truly become regenerative and distributive by design, however, it also means that there is a lack of understanding of how DE can influence businesses and the potential impact on their revenue or the pillar of sustainability: economic. The model offers a clear goal for companies, staying within the doughnut; however, it is limited in terms of how to achieve this. How each company stays within the social and environmental boundaries is dependent on the business, and it requires motivation and innovation from businesses to work out how to do this [23]. Raworth [24] argues that, in order to create a regenerative business and economy, we need to create a circular design through loops in order to transition away from the linear economy. This shows clear parallels with the CE discussed previously; however, it goes one step further by encouraging economics to integrate the social pillar and become regenerative and distributive by design.

4. Permaculture

Permaculture can be defined as an approach to “*design and develop sustainable communities in harmony with natural ecosystems*” [25] (p. 720). Whilst traditionally considered a regenerative agriculture practice, Permaculture has been recently used to develop sustainable social models [26]. According to Genus [27] (p. 1454):

“Permaculture is a growing but little researched phenomenon emphasising care for the environment, equity, fair treatment of people and working with—and not against—nature. It thus represents a potential alternative to business as usual, capable of addressing fundamental challenges posed by human-made climate change.”

Entrepreneurs working with Permaculture describe it as:

“a framework’, ‘a set of ethics’, a ‘design approach’ with which to create resilient ecosystems, societies and cultures that support people to meet their basic needs and that work with nature.” [27] (p. 1460)

By using a set of principles and the ethics of people care, earth care, and fair shares [28], Permaculture offers a framework centered around society and the environment. Although Permaculture is not strongly associated with economics, there is evidence to show it can be applied at the company level as an alternative management system and a basis for sustainable enterprise model innovations [29]. Others also suggest that Permaculture can be used to respond to social issues arising in social economy enterprises [30] and to create regenerative companies [31,32]. According to Macnamara [33], Permaculture is a framework that encourages abundance. When the basis of economics is society and how people cope with scarcity, it seems relevant to explore Permaculture’s role in economics. Can Permaculture’s focus on abundance contribute to an economic model that, by nature, considers society and the environment and creates the ability to cope with scarcity?

So, why is Permaculture not applied more to economics? Whilst Permaculture is useful in integrating society and the environment and encouraging abundance, there is limited application to the business context and current applications tend to focus on small businesses rather than larger businesses or at the country or government level [27]. In addition, Permaculture is more useful for looking at management and social systems within businesses to create a holistic economic model rather than for financial stability, however, economics also needs to be considered in order for the model to be fully sustainable.

5. The Key Combination

It is clear that the CE, DE, and Permaculture all offer alternative economic models to the current linear model by bringing in the environment and/or society as a key element within economics and responding to the core points of an economic system: society and dealing with the scarcity of resources. Whilst these models offer an alternative, none are fully holistic nor focus on all pillars of sustainability: social, environmental, and economic. Therefore, focusing on them separately does not offer a holistic model:

- CE focuses on the environment and economics;
- DE focuses on the society and the environment;
- Permaculture focuses on the society and the environment.

So, what if these models could be combined to create an economic model that is truly holistic? Perhaps, by combining the CE, the DE, and Permaculture, an economic model can be developed that aligns with all three pillars of sustainability: social, environmental, and economic.

6. Principles

The CE, the DE, and Permaculture all offer an alternative way to look at economics, but do they fit together and are they truly aligned? According to the Ellen MacArthur Foundation [4], the CE is based on a few simple principles. The DE has principles of practice [34], and the co-creator of Permaculture, David Holmgren, developed 12 principles of Permaculture [35]. When looking at these principles across the three models, they are clearly aligned and can be mapped together, as seen in Table 1.

Table 1. Principles of CE, DE, and Permaculture.

Circular Economy ¹	Doughnut Economy ²	Permaculture ³
		Observe And Interact
		Catch And Store Energy
	Be Regenerative	Obtain A Yield
		Apply Self-Regulation And Accept Feedback
Rely On Energy From Renewable Sources		Use And Value Renewable Resources And Services
Design Out Waste		Produce No Waste
Waste Is Food		
Think In ‘Systems’	Think In Systems	Design From Patterns To Details
	See The Big Picture	
	Be Distributive	Integrate Rather Than Segregate
	Aim To Thrive Rather Than To Grow	Use Small And Slow Solutions
Build Resilience Through Diversity	Nurture Human Nature	Use And Value Diversity
	Embrace The 21st Century Goal	Use The Edges And Value The Margin
		Creatively Use And Respond To Change

¹ Ellen Macarthur Foundation (2012). ² Doughnut Economics Action Lab (2020). ³ Holmgren (2020).

The principles across the three models draw clear parallels. All three models bring in the importance of thinking in systems and seeing the big picture. In economic terms, this can be applied to bringing in different elements into an economic system, such as valuing the environment, society, and economic stability. Furthermore, all models suggest the importance of diversity and the human dimension (Build Resilience Through Diversity, Nurture Human Nature, Use And Value Diversity), offering a potential solution for coping with scarcity by building resilience through diversity.

7. Holistic Model for Future Generations

There is a lack of a fully holistic economic model that takes into account all of the three pillars of sustainability and is aligned with the core of economics in that it should consider society and human behaviour in response to the scarcity of resources. This paper aims to demonstrate the potential of creating a holistic economic model that protects people and the planet by design through the combination of the CE, the DE, and Permaculture. Combining these models aims to offer a solution to the issues with the CE identified [15,17] by adding a social dimension, ensuring the economic model is aligned with the socially focused SDGs and is more sustainable for future generations. In addition, it supports the DE in businesses [22] by bringing in the importance of financial stability and economics from the CE. Finally, by integrating Permaculture, it gives an economic value to Permaculture that can be used to guide businesses towards truly sustainable development by focusing on society, the environment, and economics. The additional principles of Permaculture [35] also offer a more holistic model that not only keeps society and the environment at the center but also offers a clearer guide on how to ensure people and the planet are considered.

Integrating these models can support the understanding of how companies can effectively ensure the three pillars of sustainability are met, and combining these models aims to offer a solution to the following questions:

- How can social dimensions from sustainable development concepts be integrated into the CE to create a holistic model that covers the three pillars of sustainability?
- How can an effective social and environmental dimension be built into a future economic framework?

Combining the CE, DE, and Permaculture suggests the potential of a future, holistic economic model for future generations.

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References

1. Robbins, L.C. *An Essay on the Nature and Significance of Economic Science*; Macmillan and Co.: London, UK, 1935; p. 16.
2. Marshall, A. *Principles of Political Economy*, 8th ed.; Macmillan: London, UK, 1890; pp. 1–2.
3. Bade, R.; Parkin, M.; Lyons, B. *Foundations of Microeconomics*; Addison Wesley: Toronto, ON, Canada, 2002; p. 5.
4. Ellen MacArthur Foundation. An economic and business rationale for an accelerated transition. *Towards Circ. Econ.* **2012**, *1*, 14–20.
5. ARUP. Four Plausible Futures 2050 Scenarios. 2019, p. 48. Available online: <https://www.arup.com/perspectives/publications/research/section/2050-scenarios-four-plausible-futures> (accessed on 14 June 2021).
6. Investopedia. Available online: <https://www.investopedia.com/insights/worlds-top-economies/> (accessed on 9 June 2021).
7. European Union. Available online: <https://op.europa.eu/en/publication-detail/-/publication/45cc30f6-cd57-11ea-adf7-01aa75ed71a1/language-en/format-PDF/source-170854112> (accessed on 5 May 2021).
8. The Platform for Accelerating the Circular Economy. The Circularity Gap Report 2020. 2020. Available online: <https://www.circularity-gap.world/2020> (accessed on 14 June 2021).
9. Ellen MacArthur Foundation. Available online: <https://www.ellenmacarthurfoundation.org/our-work/approach/business> (accessed on 14 June 2021).
10. Ellen MacArthur Foundation. Available online: <https://www.ellenmacarthurfoundation.org/our-work/approach/government-and-cities> (accessed on 14 June 2021).
11. Pauli, G. From Deep Ecology to the Blue Economy. A Review of the Main Concepts Related to Environmental, Social and Ethical Business that Contributed to the Creation of The Blue Economy. 2011, p. 10. Available online: http://www.zeri.org/ZERI/Home_files/From%20Deep%20Ecology%20to%20the%20Blue%20Economy%202011.pdf (accessed on 5 June 2021).
12. Lovins, A.B.; Lovins, L.H.; Hawken, P. A road map for natural capitalism. In *Understanding Business Environments*; Routledge: London, UK, 1999; pp. 250–263.
13. Benyus, J.M. *Biomimicry: Innovation Inspired by Nature*; William Morrow & Co.: New York, NY, USA, 1997.
14. Hysa, E.; Kruja, A.; Rehman, N.U.; Laurenti, R. Circular economy innovation and environmental sustainability impact on economic growth: An integrated model for sustainable development. *Sustainability* **2020**, *12*, 4831. [CrossRef]
15. Murray, A.; Skene, K.; Haynes, K. The Circular Economy: An Interdisciplinary Exploration of The Concept and Application In A Global Context. *J. Bus. Ethics* **2017**, *140*, 376. [CrossRef]
16. Schroeder, P.; Anggraeni, K.; Weber, U. The Relevance of Circular Economy Practices to The Sustainable Development Goals. *J. Ind. Ecol.* **2019**, *23*, 77–95. [CrossRef]
17. Padilla-Rivera, A.; Russo-Garrido, S.; Merveille, N. Addressing The Social Aspects Of A Circular Economy: A Systematic Literature Review. *Sustainability* **2020**, *12*, 7912. [CrossRef]
18. Raworth, K. *Doughnut Economics: Seven Ways to Think Like a 21st-century Economist*; Chelsea Green Publishing: London, UK, 2017.
19. Raworth, K. Why It's Time for Doughnut Economics. *IPPR Progress. Rev.* **2017**, *24*, 217. [CrossRef]
20. Doughnut Economics Action Lab. Available online: https://doughnuteconomics.org/tools-and-stories/14?stories_page=3&users_page=3 (accessed on 4 June 2021).
21. Doughnut Economics Action Lab. Available online: <https://doughnuteconomics.org/projects> (accessed on 4 June 2021).
22. Doughnut Economics Action Lab. Available online: <https://doughnuteconomics.org/faq/businesses-and-the-doughnut> (accessed on 4 June 2021).
23. ChangeNOW. Available online: <https://www.youtube.com/watch?v=yRpOxK2AxJE> (accessed on 5 June 2021).
24. Business Meets the Doughnut v1.0. Available online: https://www.youtube.com/watch?v=J_WPzDVpKvw (accessed on 7 June 2021).
25. Fadaee, S. The Permaculture Movement In India: A Social Movement With Southern Characteristics. *Soc. Mov. Stud.* **2019**, *18*, 720. [CrossRef]
26. Macnamara, L.; Storch, R. *People and Permaculture*; Permanent Publications: East Meon, UK, 2012.

27. Genus, A.; Iskandarova, M.; Warburton Brown, C. Institutional Entrepreneurship And Permaculture: A Practice Theory Perspective. *Bus. Strategy Environ.* **2021**, *30*, 1454–1467. [[CrossRef](#)]
28. Mollison, B.; Holmgren, D. *Permaculture*; International Tree Crop Institute USA: Davis, CA, USA, 1978.
29. Vitari, C.; David, C. Sustainable Management Models: Innovating Through Permaculture. *J. Manag. Dev.* **2017**, *36*, 14–36. [[CrossRef](#)]
30. Lapoutte, A. The Problem Is The Solution: Can Permaculture Management Regenerate Social Economy Enterprises? *Ann. Public Coop. Econ.* **2020**, *91*, 479–492. [[CrossRef](#)]
31. Landua, G.; Roland, E.C. Eight Forms of Capital. Available online: <http://www.appleseedpermaculture.com/8-forms-of-capital/> (accessed on 4 June 2021).
32. Rhodes, C.J. Feeding and Healing The World: Through Regenerative Agriculture and Permaculture. *Sci. Prog.* **2012**, *95*, 345–446. [[CrossRef](#)] [[PubMed](#)]
33. Macnamara, L. *People & Permaculture: Designing Personal, Collective and Planetary Well-Being*, 2nd ed.; Permanent Publications: Hampshire, UK, 2019.
34. Doughnut Economics Action Lab. Available online: <https://doughnuteconomics.org/about-doughnut-economics> (accessed on 4 June 2021).
35. Holmgren, D. *Essence of Permaculture*; Melliodora: Victoria, Australia, 2020.