



1. Starring: Circular Economy

- ▶ **Circular Economy (CE) is an "umbrella concept"**, i.e. "an emergent framing around waste and resource management that aims to offer an alternative to prevalent linear take-make-dispose practices by promoting the notion of waste and resource cycling" [1]
- ▶ **CE is a contested concept** [2] and subject to critique in the scientific literature, for among other things **its lack of social considerations** [3] and **social context** [4,5]

2. What the literature says....

- ▶ **Key question for CE:** long-term sustainable development goals is how the saved resources and money generated by the CE framework can be directed to sustainable consumption practices [6]
- ▶ **Focus on the production side:** studies on CE have had limited attention on how consumption and consumers would affect or be affected by CE [7]

3. Which are the issues?

- ▶ **Unintended consequences:** Applying CE strategies to production systems could lead to unintended consequences due to shifts in both production and consumption
- ▶ **Undesired side-effects of CE:** includes:
 - ▶ indirect unintended consequences leading to shifts in consumption [8]
 - ▶ the so-called CE rebounds which might happen when CE activities, which have a lower per-unit-production impacts, also cause increased levels of production, reducing their benefits [9]
- ▶ **Limited quantification** of undesired side effects [10] is mainly based on the use of Life Cycle Assessment (LCA), which is an established method to assess the environmental performances of product systems [11]
- ▶ **Our suggestion** is to complement LCA with other types of analytical approaches able to qualify understandings of the side effects of CE strategies and provide solutions, i.e. Practice Theory (PT) [12] and Actor-Network Theory (ANT) [13]

4. What is Practice Theory?

- ▶ **Practice theory (PT):** a family of multiple theories of practice that focuses on understanding 'what people do'
- ▶ **Definition:** a practice is "a routinized way in which bodies are moved, objects are handled, subjects are treated, things are described and the world is understood" [14]
- ▶ **Ontology:** Theories of practice operate within a flat ontology, that neither establishes hierarchies between practices nor between the actors that carry practices [15]
- ▶ **Social Dimension:** PT emphasizes the social dimensions of what people do, particularly exploring how social norms and ideas about normality come to be as a result of the reproduction of social practices

5. What is Actor Network Theory?

- ▶ **Actor-Network Theory (ANT):** a family of conceptual and methodological approaches that has evolved from studies in the sociology of science and technology from the late 1970s [16]
- ▶ **Focus:** ANT is concerned with how 'things' such as CE or other forms of societal order, come into being, i.e. are generated and stabilized (or not) to become (or not become) taken-for-granted features of society
- ▶ **Ontology:** In ANT there is no analytical distinction between human and non-human actors
- ▶ **Agency:** the ability to act, is considered distributed across different, interacting actors that are afforded their abilities to act by what surrounds them

6. Our suggestion...

- ▶ **LCA:** an assessment method for scenario building, not just representing reality but actively involved in creating it by rendering certain things visible and actionable
- ▶ **A PT approach:** An approach to studying undesired side-effects of CE strategies would be to consider how particular interventions in material aspects may influence the social and vice versa
- ▶ **An ANT study:** would also focus on how LCA, and notably the results such analyses produce, help to align usage with product design and mediate the ways in which the products are produced.
- ▶ **An ANT perspective:** both CE initiatives and their undesired side effects would be considered outcomes of the dynamic configuration of people and materials involved
- ▶ **The unintended side effects** are considered as overflows [17]; something that exceeds the framing – or definition – of what the CE initiatives are supposed to achieve
- ▶ **ANT analyses** would consider how the CE initiatives are framed and defined, and how the involved consumers, producers, suppliers, calculations, raw materials, and technologies become aligned (or not) in developing these initiatives

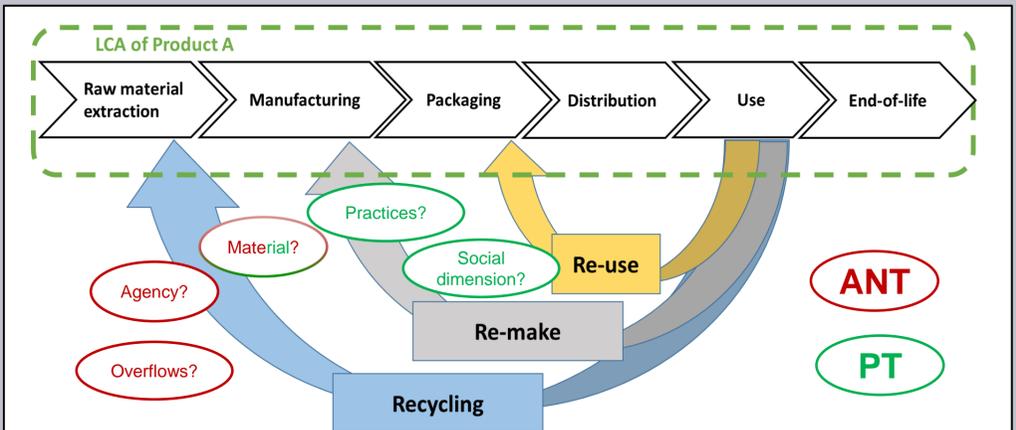


Fig. 1: Representation of the life cycle of a product and different Circular Economy (CE) strategies (Re-use, Re-make, Recycling)

Disclaimer: The initial idea of this poster is further elaborated in the paper "Making unintended side-effects from Circular Economy knowable to support decision making: what can Life Cycle Assessment learn from Practice Theory and Actor Network Theory?" by Niero et al. under review

7. References

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