

# What is the true meaning of circularity?

Beverage packaging as a case study

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Reaction by  
Academia

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Wageningen Food & Biobased Research.



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## Waste Management

journal homepage: [www.elsevier.com/locate/wasman](http://www.elsevier.com/locate/wasman)



### Keep circularity meaningful, inclusive and practical: A view into the plastics value chain

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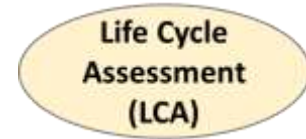
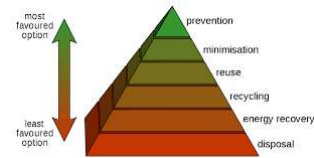
<sup>d</sup> Wageningen Food & Biobased Research, Wageningen University & Research, Netherlands

Thank you for having initiated this discussion!



# Points of discussion

1. The **meaning** of circularity and the link between circular economy and sustainability
2. The proposed **scorecard** and learnings from the waste hierarchy
3. Sustainability assessment of circularity strategies: which role for **Life Cycle Sustainability Assessment?**



# 1. The meaning of circularity and the link between circular economy and sustainability



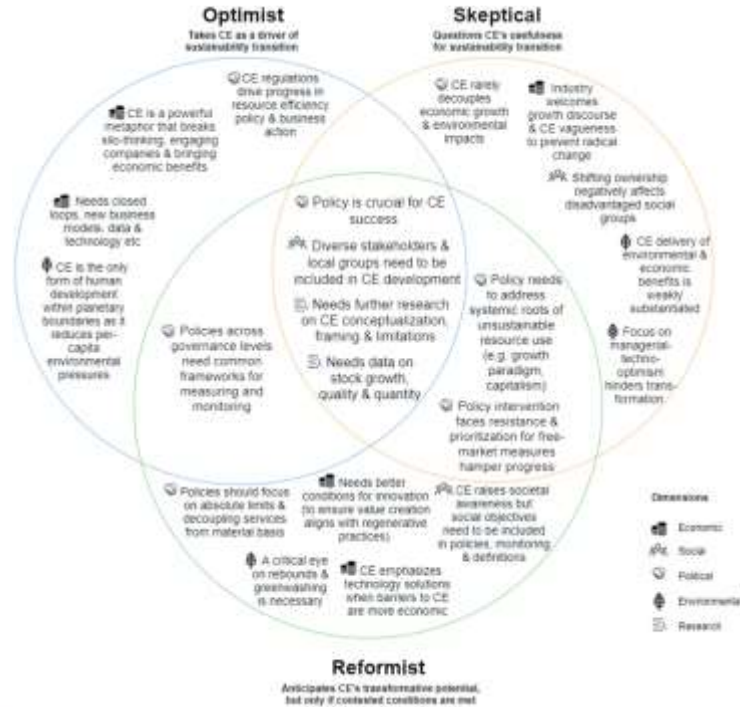
Extract from the paper, section “Meaningful principles for measuring circularity”

*“There is no such thing as circular materials, components, and products; there are only **different degrees of circularity or resource efficiency**, dependent on inherent, designed and created attributes and external variables”*

→ What is the difference between resource efficiency and circularity?



# 1. The meaning of circularity and the link between circular economy and sustainability



**Optimist** narrative → takes CE as a fundamental part of sustainability transformations and suggests specific actions to reach a sustainable CE

**Reformist** narrative → argues that the CE has transformative potential but only if social and environmental boundary conditions are met

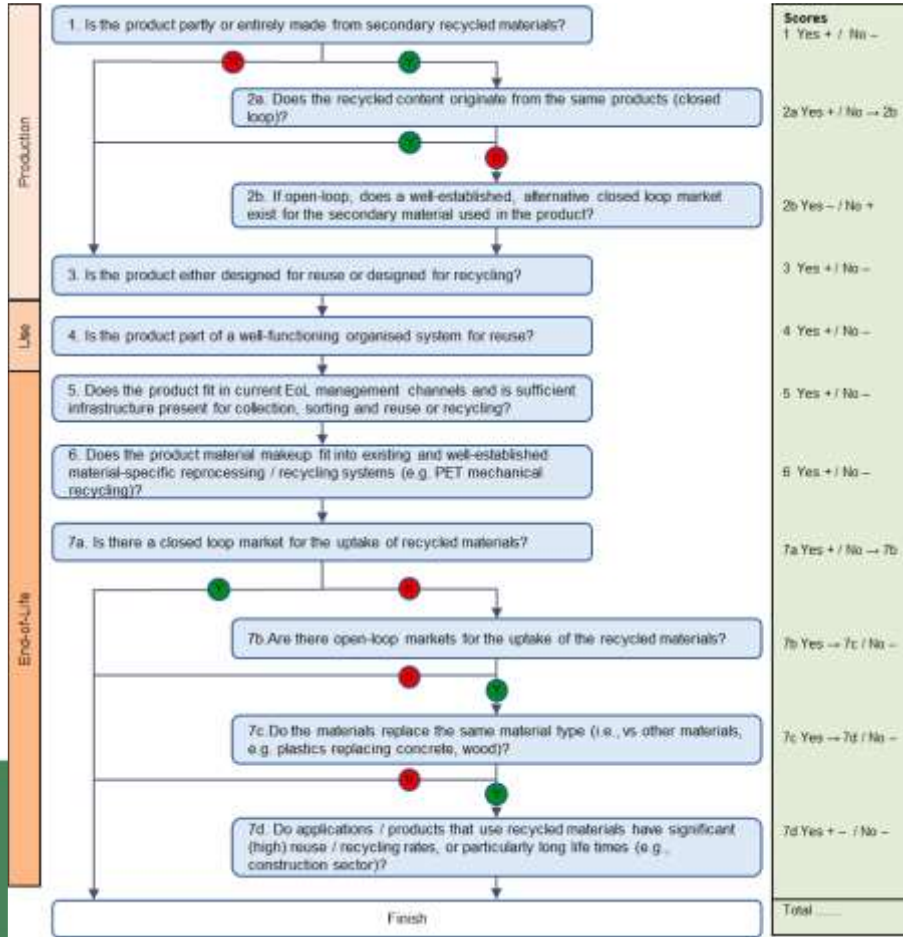
**Skeptical** narrative → questions the general usefulness of a CE for sustainability transformations

→ Which narratives do you agree with?





## 2. The proposed scorecard



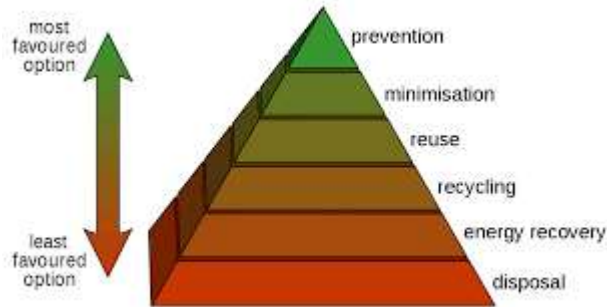
“The paper adopts a **product centric approach**, although we use material, component and product systems and recycling processes in our argumentation”

→ What is the link between materials, components, product systems and recycling processes in a circular economy for beverage packaging?



## 2. The proposed scorecare and learnings from the waste hierarchy

*“As a simple approach to tackle complexities regarding closed-/open-loop systems, we propose a circularity scorecard which captures aspects that are likely to indicate the environmental sustainability of a product (through its life cycle). It is a “common sense” approach and has parallels to the waste hierarchy, which could work in a similar way, i.e., **a simple priority order that most often holds true**. Its application, by businesses, for example, could screen for viable new product/packaging designs.*



→ Any learnings from the application of the waste hierarchy that can be transferred also to the circularity discussion in the beverage packaging sector?



### 3. Sustainability assessment of circularity strategies: which role for Life Cycle (Sustainability) Assessment?

*“The **development** and **measuring** of circularity, and the **monitoring** of circularity processes, require indicators that **are fit-for purpose**, easy to understand and use over time (scalable) (Iacovidou et al., 2019).*

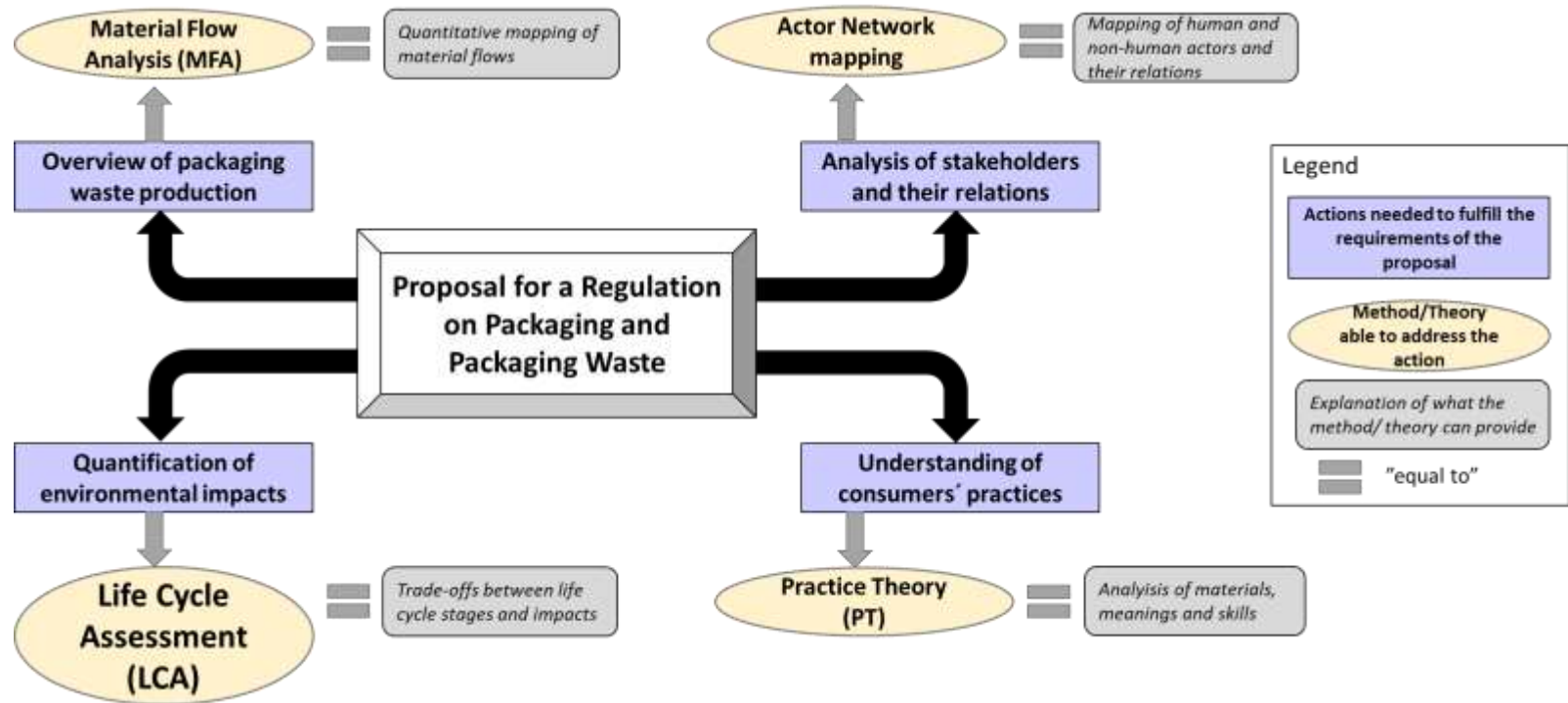
*These indicators must be **complemented by comprehensive sustainability assessments** (covering the three pillars of environment, economy, and society). Further, sustainability assessment should **include rebound effects and trade-offs**. The main imperative is to promote changes that deliver fewer trade-offs and create an intense and sustainable spiralling effect, instead of focusing on the unrealistic perfect circle.”*

→ Which role for LCA and LCSA in the circularity discussion?





# 3. Sustainability assessment of circularity strategies: which role for Life Cycle (Sustainability) Assessment?



Niero M. (2023) Implementation of the European Union's packaging and packaging waste regulation: A decision support framework combining quantitative environmental sustainability assessment methods and socio-technical approaches. *Cleaner Waste Systems* 6, 100112



# Thank you for your attention!

## Looking forward to the discussion....



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