



## What are current research questions for the further development of LCA to assess future systems?

Hybrid, 14 March 2024

TOPGEAR Workshop: “Challenges and good practices for carbon footprint identification in very early development stages (R&D) of automotive products (electromobility)”

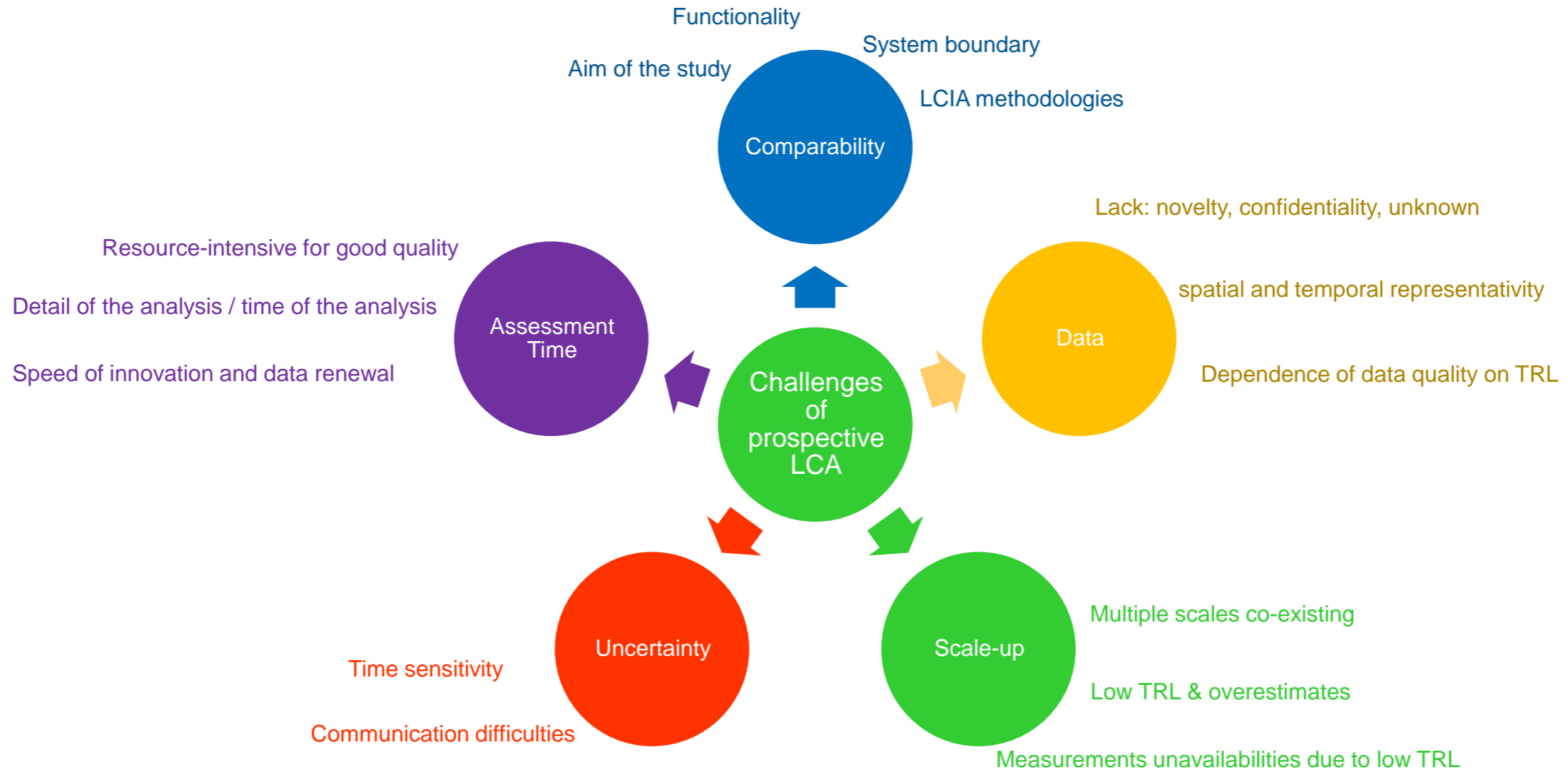
Élise Monnier – CEA



On behalf of TransensusLCA project



This project has received funding from the Research Fund for Coal and Steel under grant agreement No 101033989



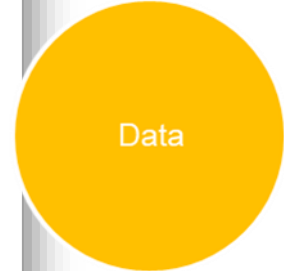
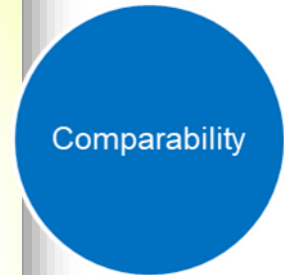
Inspired from (sources to be edited later): <https://onlinelibrary.wiley.com/doi/full/10.1111/jiec.12965>, <https://onlinelibrary.wiley.com/doi/full/10.1111/jiec.12954>, <https://www.mdpi.com/2071-1050/12/3/1192>, <https://www.sciencedirect.com/science/article/pii/S0360132323005620>, [https://link.springer.com/content/pdf/10.1007/978-3-031-48359-2\\_12?pdf=chapter%20toc](https://link.springer.com/content/pdf/10.1007/978-3-031-48359-2_12?pdf=chapter%20toc)

## The Coordinated and Support Action (CSA) TranSensus LCA



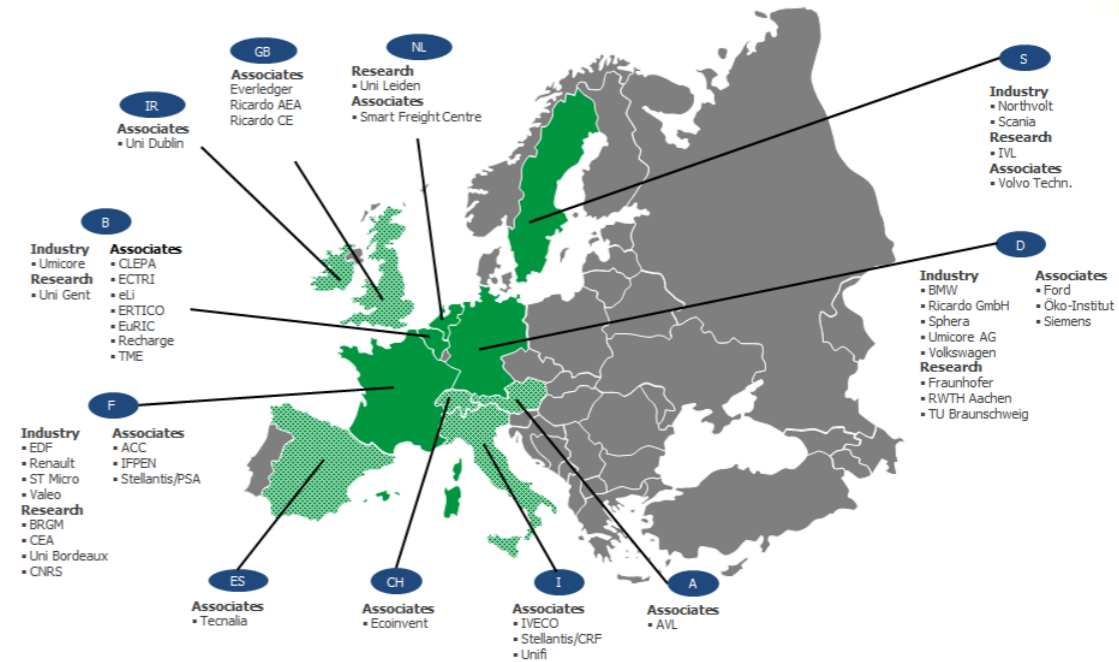
€ EU Funding **~3,7M€**
📅 **30 Months** Started in **January 2023**
👥 **20 Beneficiaries**  
 11 Industrial Partners  
 9 Research Partners

**24 Associated Partners**  
**4 Wider consultation groups**

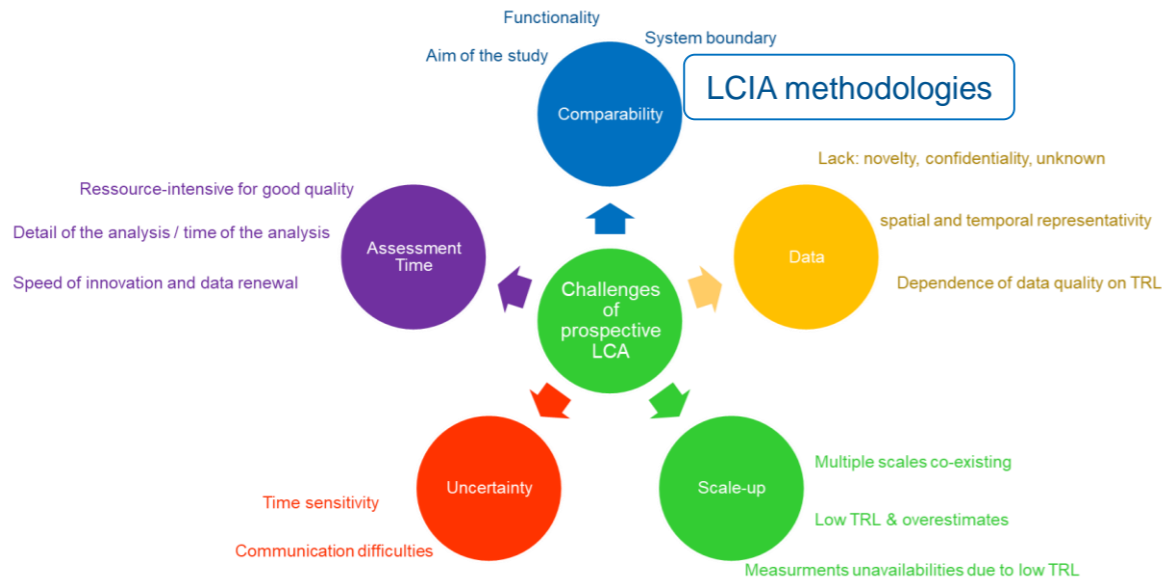


### Commonly accepted and applied single LCA approach for zero-emission road transport

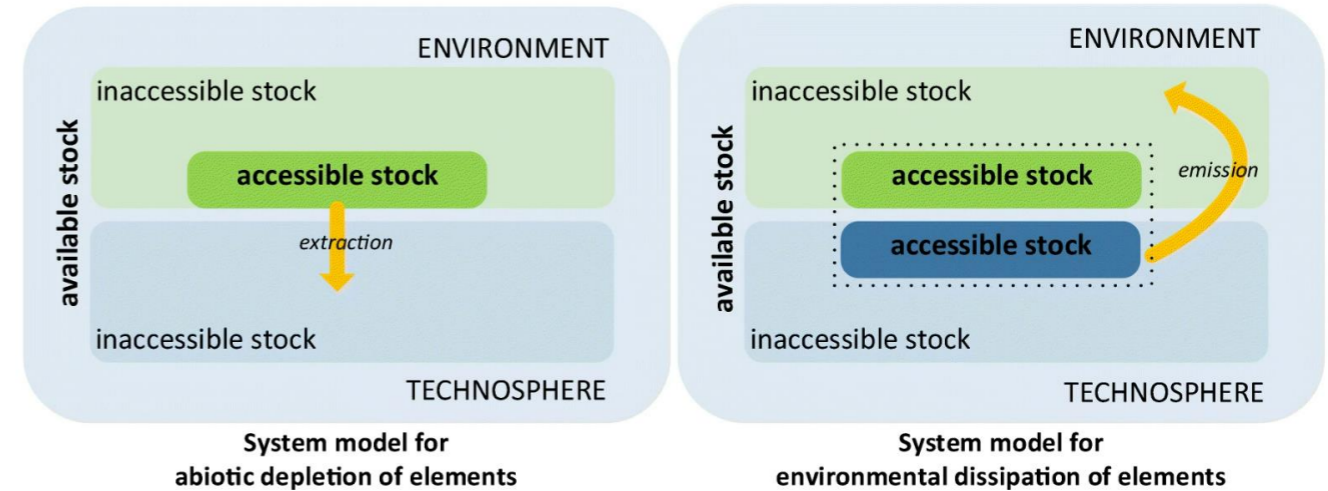
- Conceptualize and demonstrate a single, European-wide real-data LCA approach for zero-emission road transport
- Harmonization of methodologies, tools and datasets
- Elaborate an ontology and framework for a European-wide LCI database
- Conceptualize LCI data management and update along the life cycle and along the supply chain
- Paving the way for LCA-based product and business development
- Consensus building across all stakeholders



# Some research questions for LCA development



**From: Top-down characterization of resource use in LCA: from problem definition of resource use to operational characterization factors for dissipation of elements to the environment**

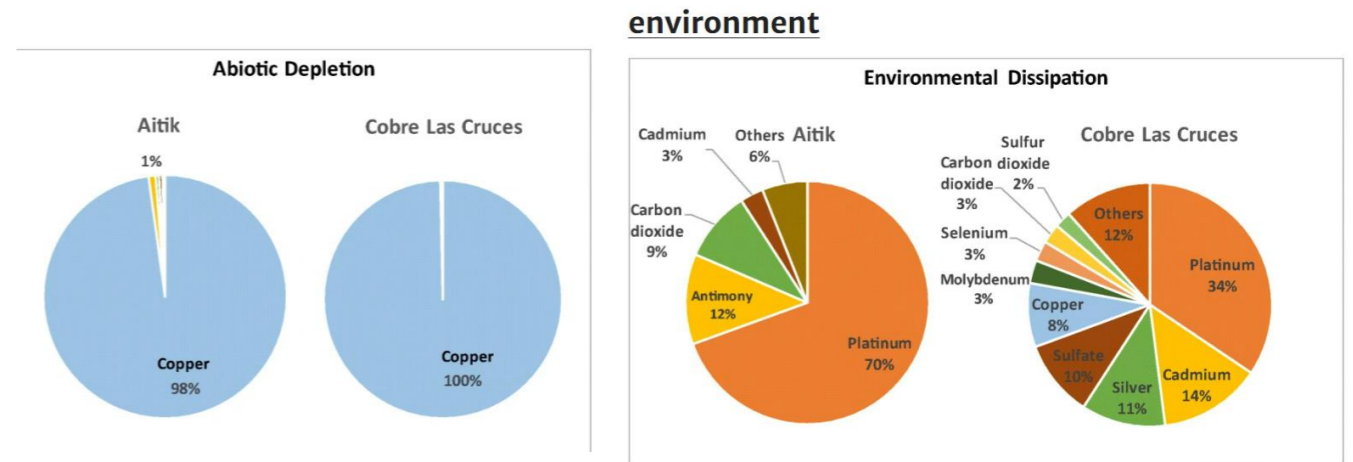


System model for abiotic depletion and environmental dissipation of elements

**Example of research question explored in**



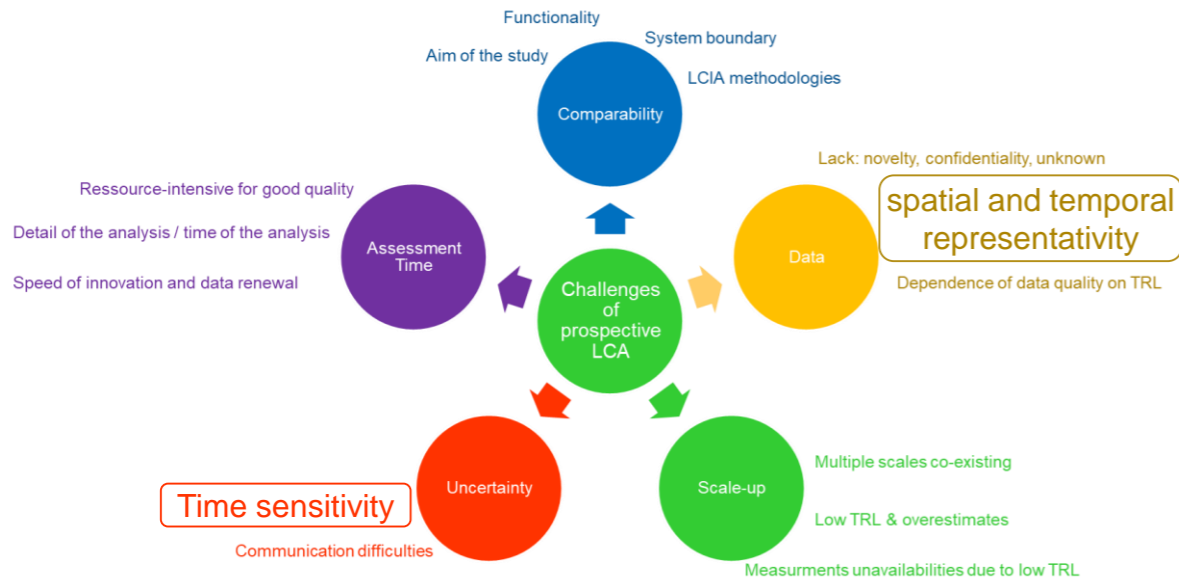
How to assess environmental impacts related to resources with LCA in our modern economy shifting toward circularity?



Breakdown of the impact on environmental dissipation (ED) and abiotic depletion (AD) for copper production by Aitik and CLC

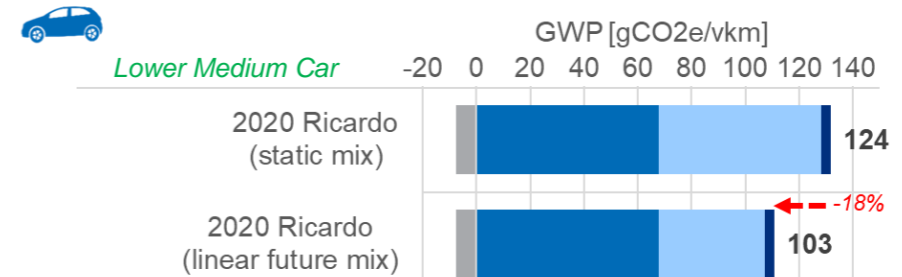
<https://link.springer.com/article/10.1007/s11367-020-01819-4>

# Some research questions for LCA development

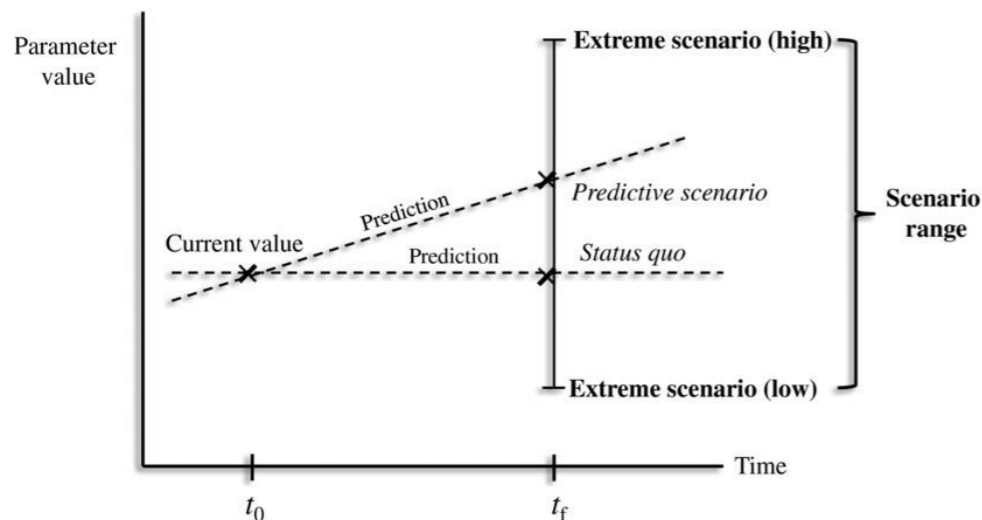


## Example of research question explored in

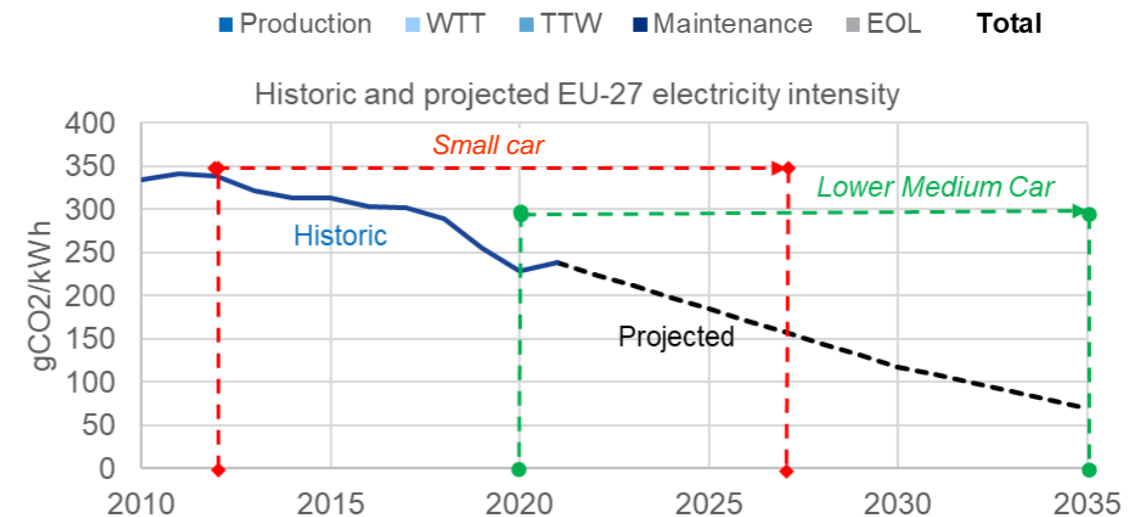
How to model electricity consumed by a system produced today in a representative way when the use phase did not happened yet?



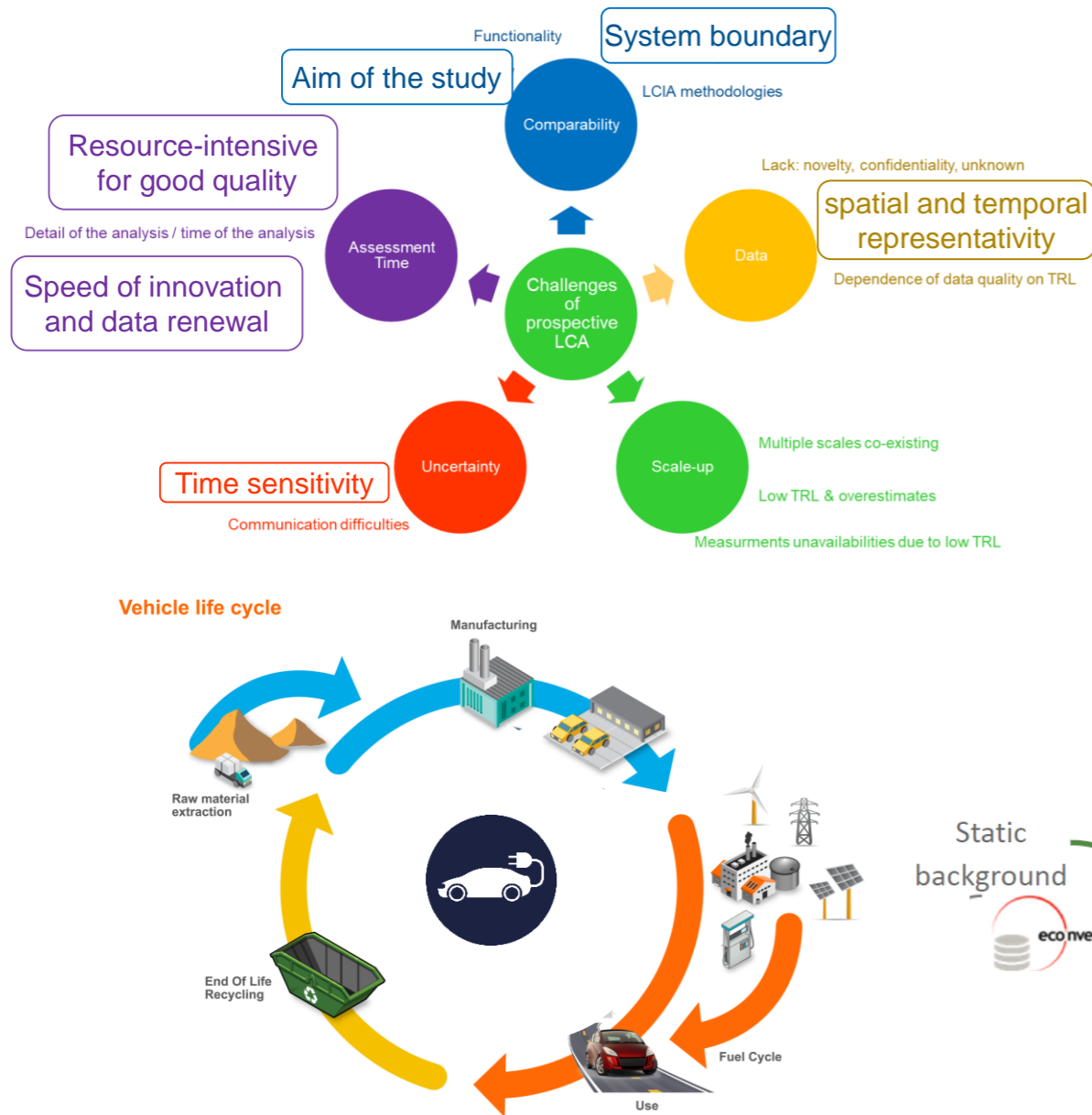
## Schematic illustration of different scenario types in prospective LCA



Arvidsson et al. 2018, Environmental Assessment of Emerging Technologies: Recommendations for Prospective LCA, [10.1111/jiec.12690](https://doi.org/10.1111/jiec.12690)



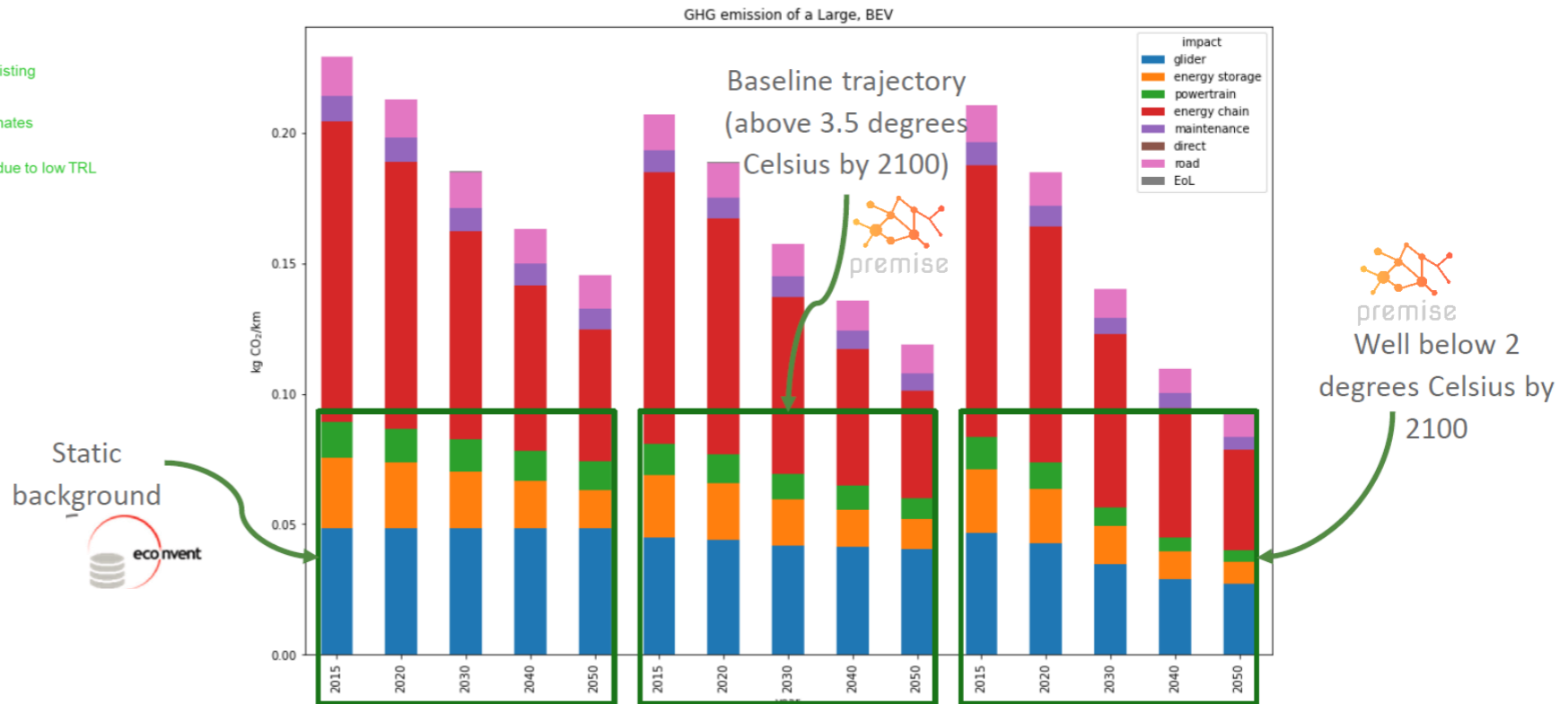
# Some research questions for LCA development



Example of research question that could be explored later in

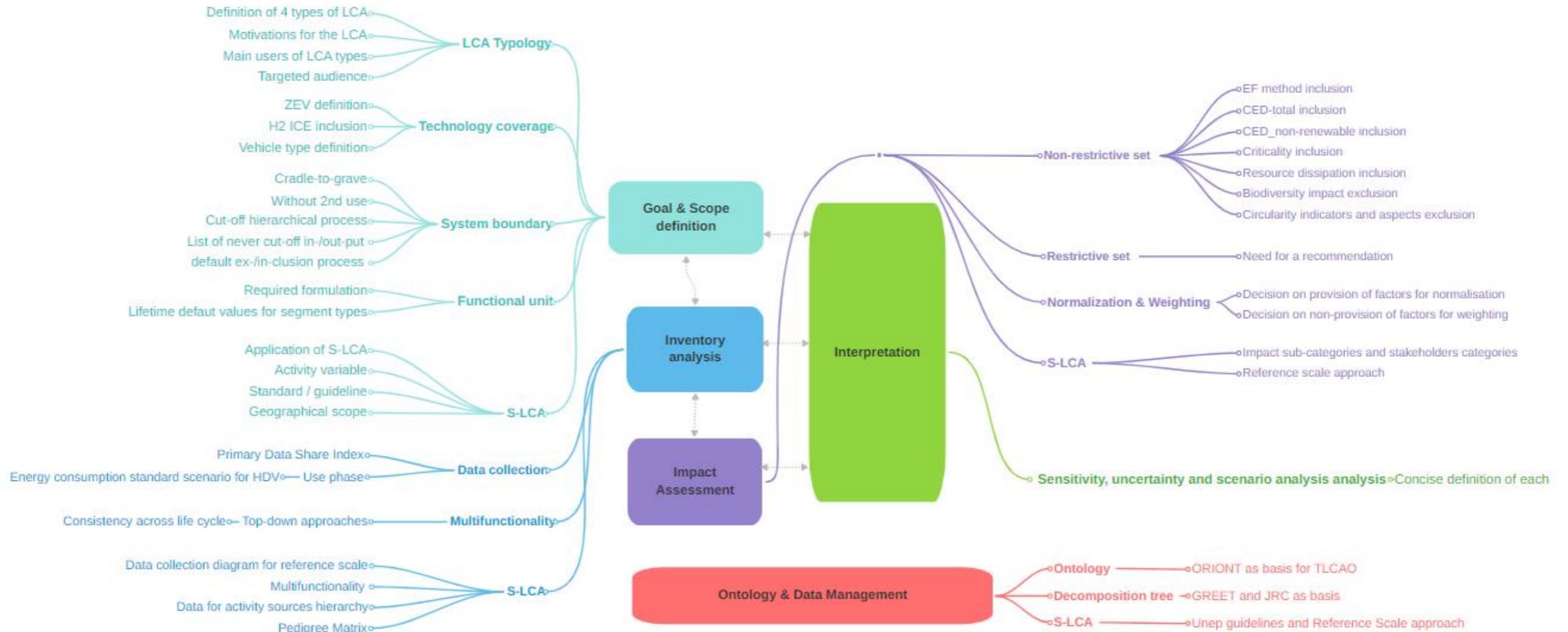


How to integrate automatically foreseen evolution of society and technologies in the background data needed to assess a future system?



# Overview of 2023 TransensusLCA results

Focus of 2023: harmonization of ZEV retrospective LCA, more to come on this type of LCA and also on prospective LCA in 2024



Please visit our website for the latest results and to subscribe to our newsletter to join consultations: [www.lca4transport.eu](http://www.lca4transport.eu)



**Thank you for your attention!**

[www.topgear-project.eu](http://www.topgear-project.eu)



This project has received funding from the Research Fund  
for Coal and Steel under grant agreement No 101033989