

C. SCOPE – Doctoral Project C2/I

LIFE CYCLE BASED DECISION-MAKING FOR MATERIALS IN ORGANISATIONS: WHAT CAN WE LEARN FROM SELECTED DECISION SUPPORT TOOLS



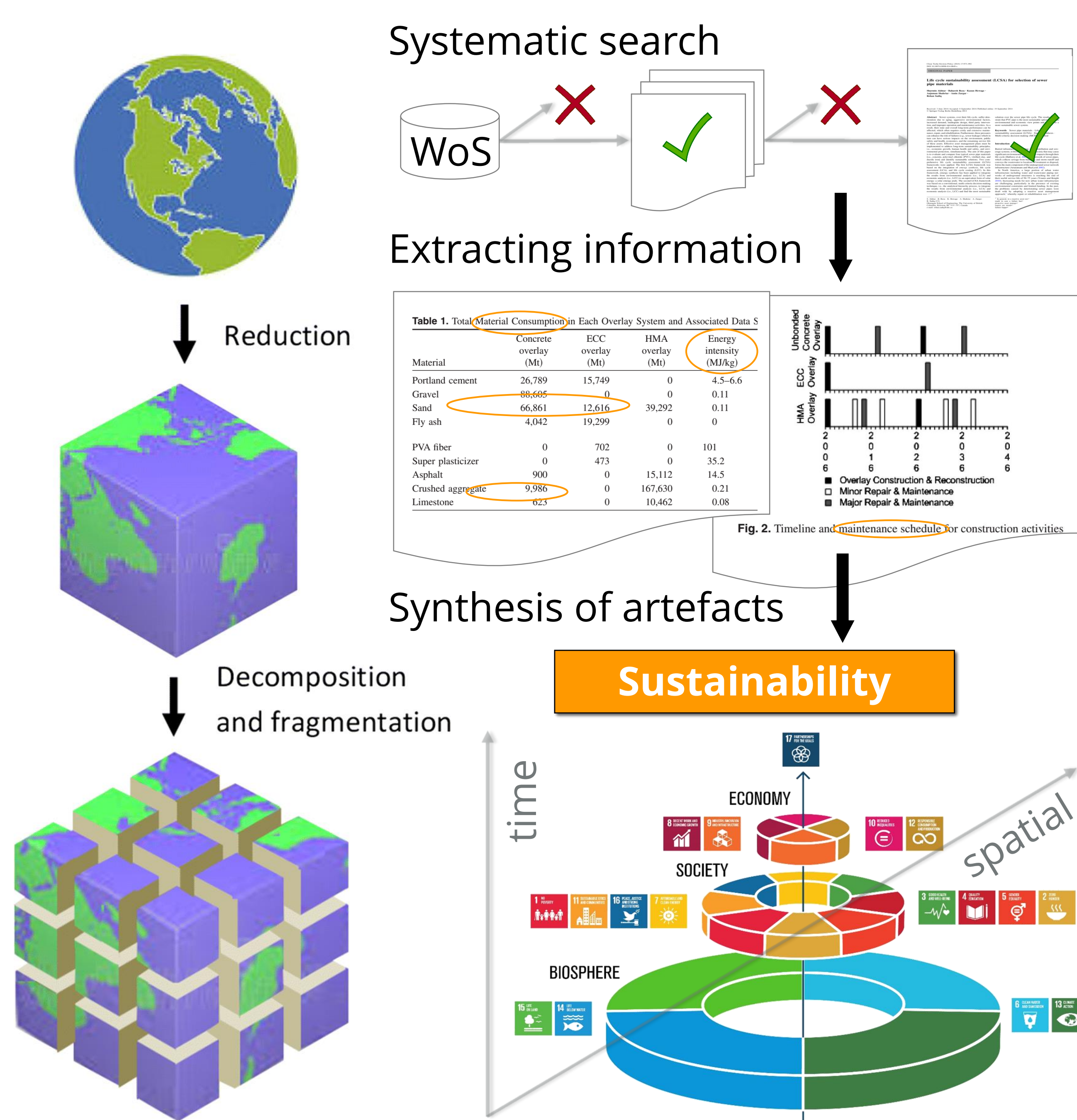
1 OBJECTIVES

- Review of the concepts sustainability and resilience, the assessment frameworks for impact related context
- Developing an eligible framework to evaluate specific GRK materials and processes at early stage
- Understand hotspots and drivers of that assessment by case study research
- Share preliminary assessment results within GRK

| Resilience dimensions | Variant 1 ... Variant 2 ... Variant n |
|-----------------------|--|
| Recognition | 1. Causes → Component 2. Effects on → Structure → Sustainability |
| Sensemaking | 3. Adaptation of the innovation process |
| Response | 4. Resilient sustainable innovation → Product → Process → Organisation |

2 METHODS

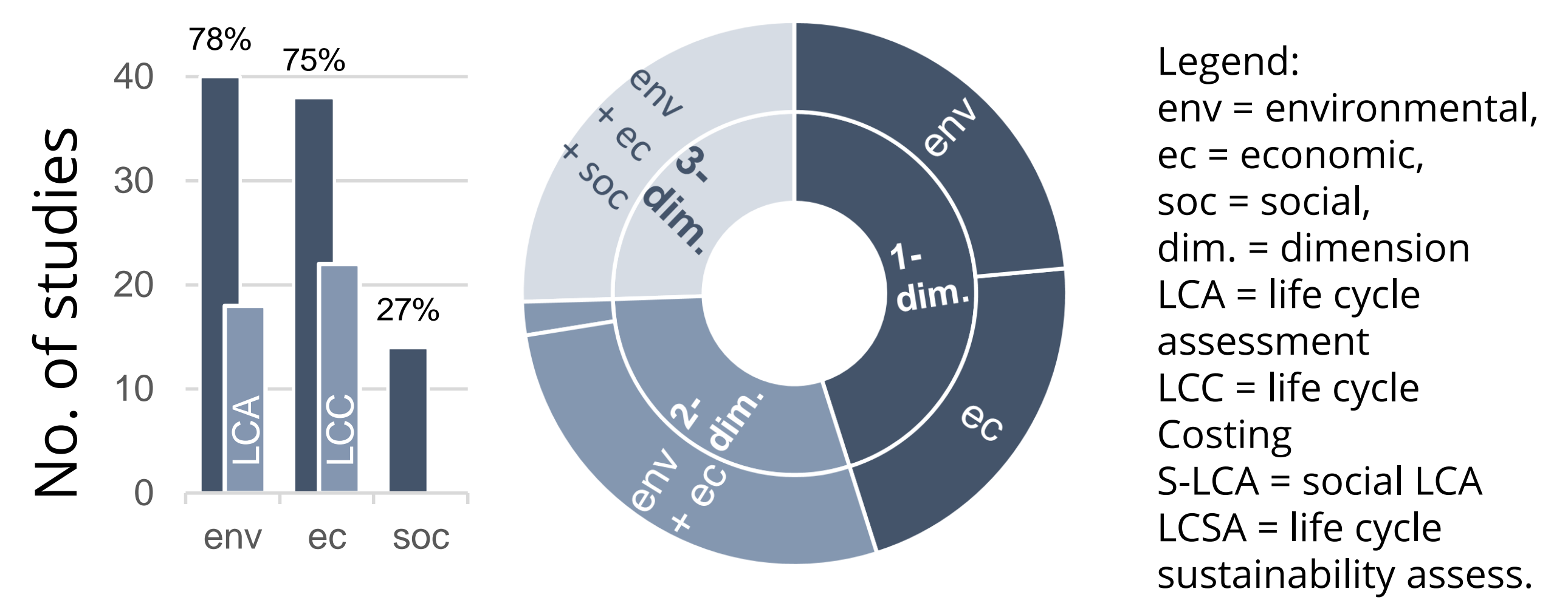
- Systematic literature review and content analysis
- Conceptualizing a quantitative framework for analysis
- Developing a life cycle assessment as starting point



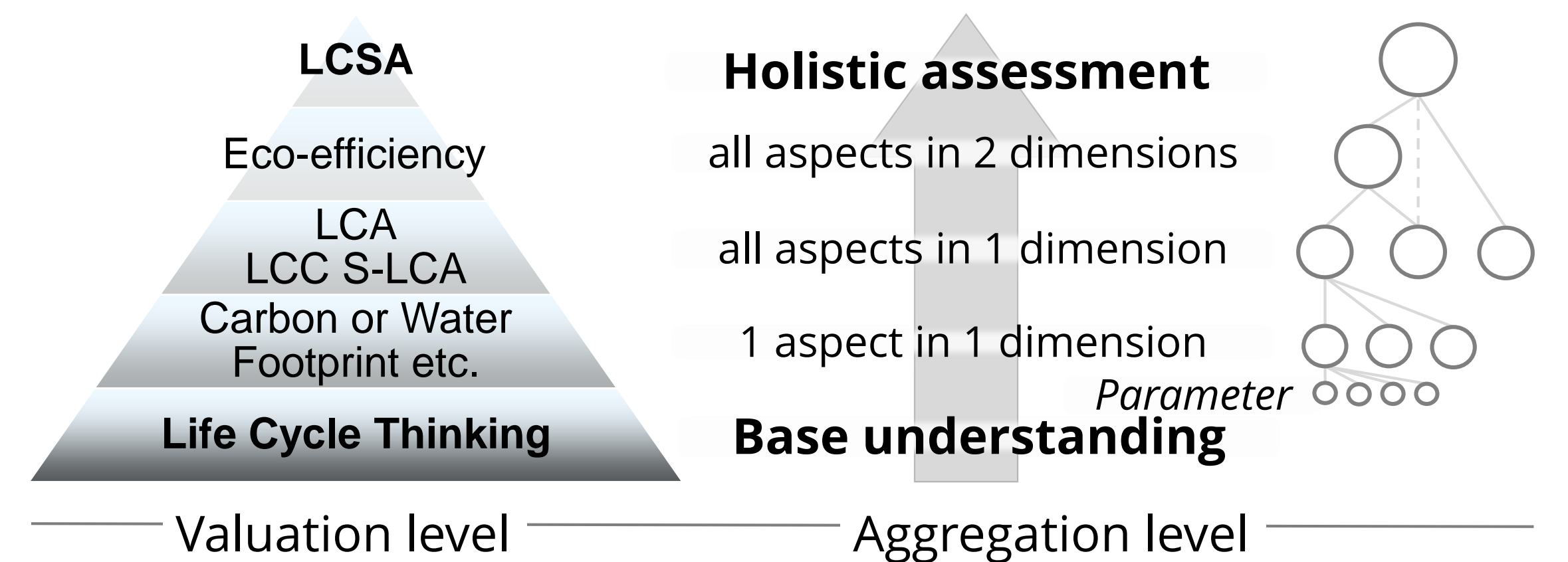
Schematic view of reviewing and conceptualizing stage (sources: van Breugel, 2018; Zhang et al., 2010; Stockholm Resilience Center, 2019; pixabay, 2020)

3 RESULTS

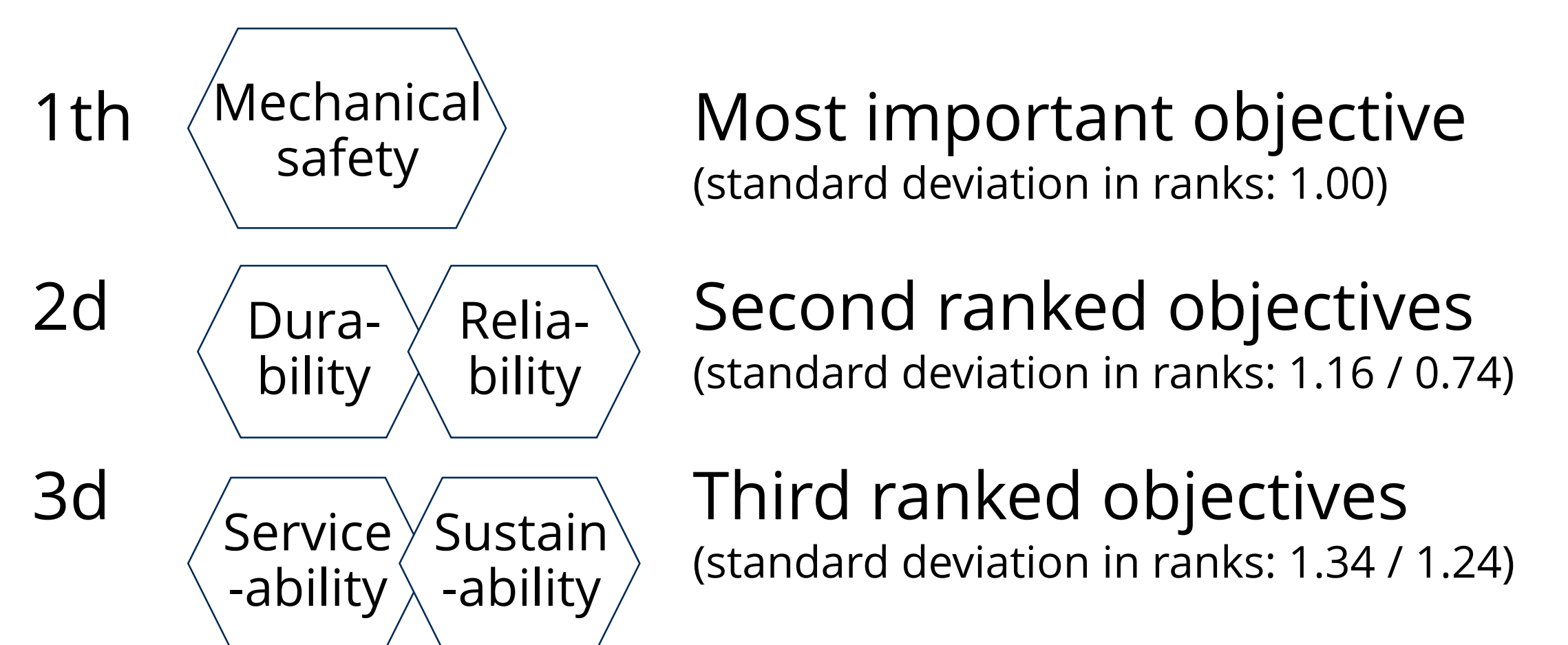
- Sustainability = economic, environmental, social sphere plus technical requirements (safety, reliability etc.)
- State of the art in research shows limited holistic sustainability assessments:



- Model for assessing sustainability



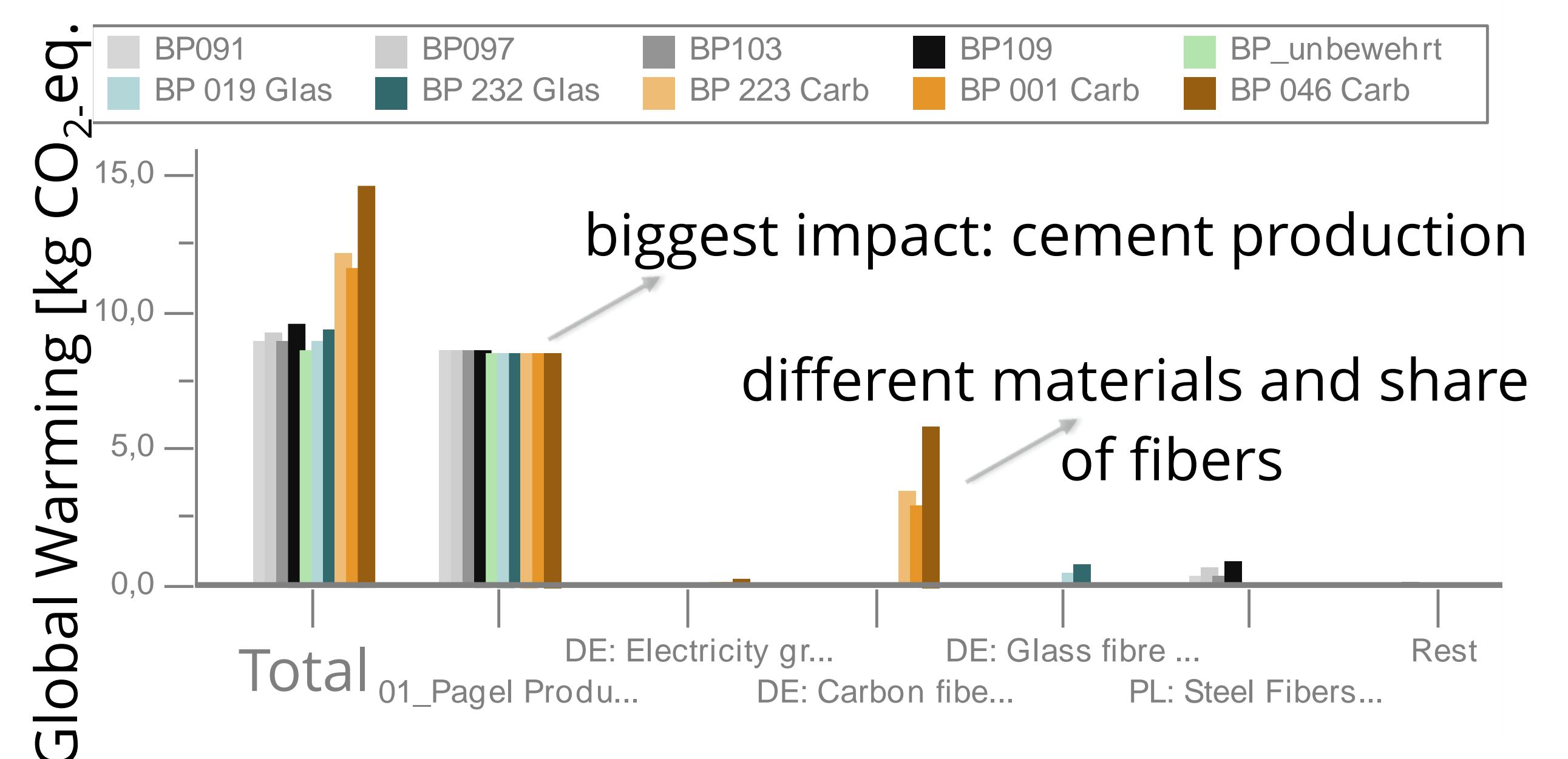
- Expert opinion among GRK colleagues: design process



- Exemplary life cycle assessment case study application

4 COLLABORATIONS

- M. HERING (A5/I): case study application for plates
 Scope et al. Materials (under review)



- E. WÖLFEL (A2/I): feasibility of materials assessment
- I. SALGADO (C2/II): base for sustainability assessments