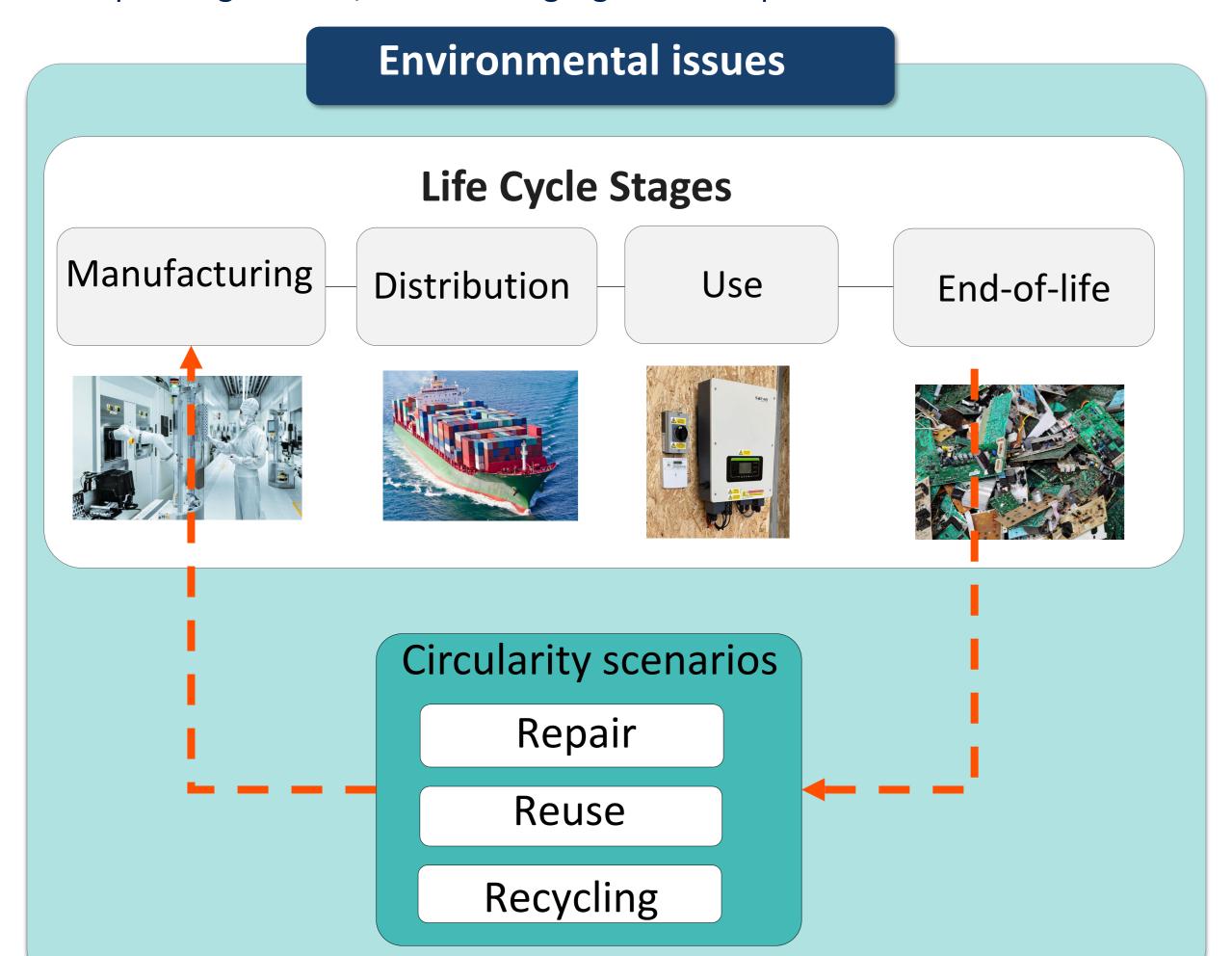
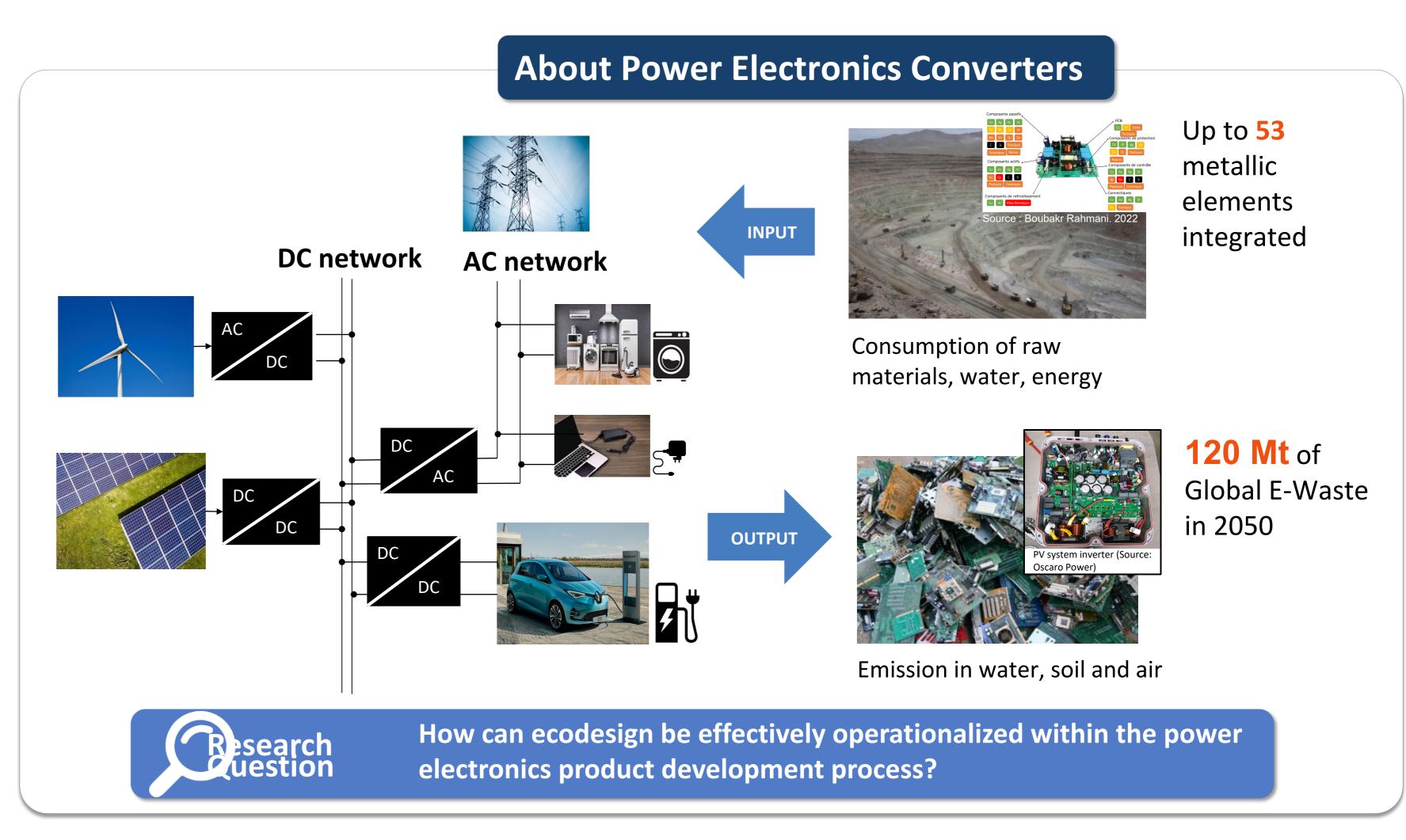
# Parametric LCA based Ecodesign Process for Power Electronics Product Development

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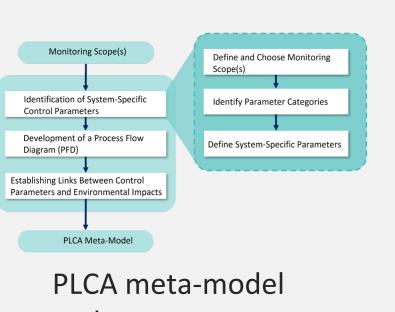


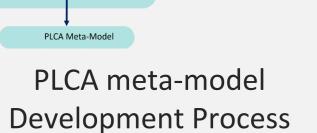
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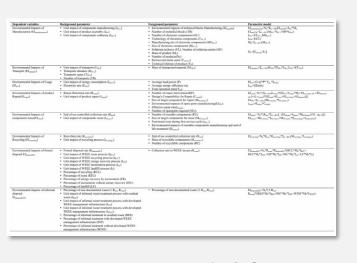




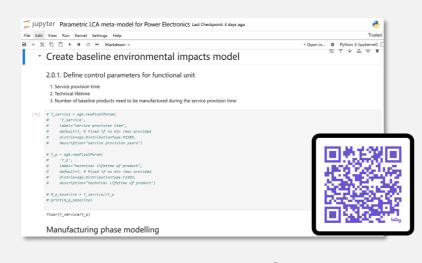




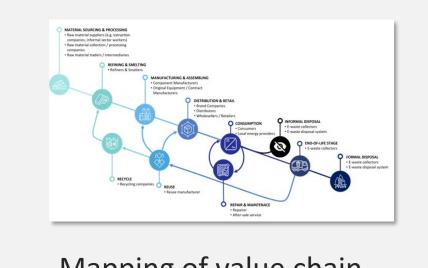
**PLCA Parameter identification** guidelines



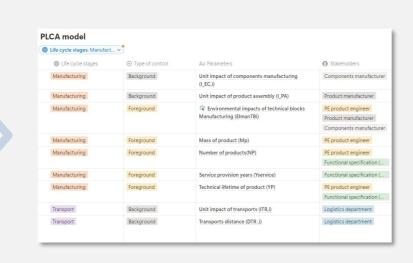
PLCA meta-model for PE products



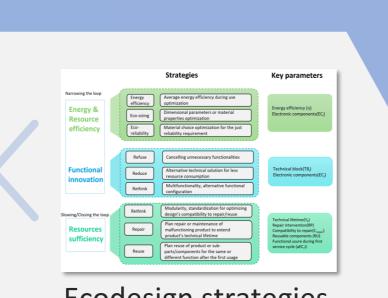
Open-source software **Implementation** 



Mapping of value chain actors

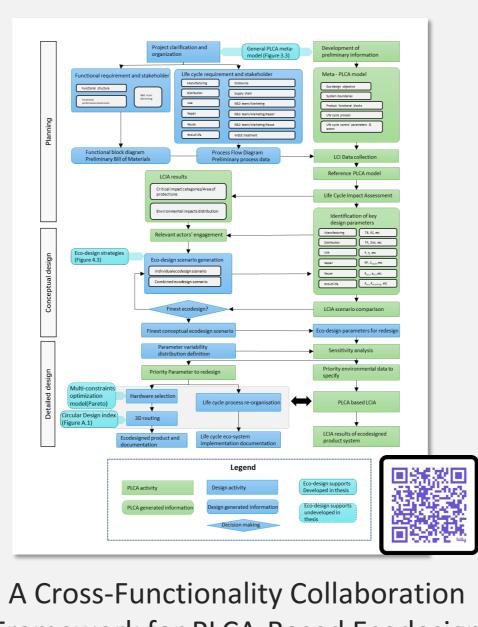


Characterisation of control parameters



**Ecodesign strategies** recommendation framework

# **Phase 2: Operation Supports**

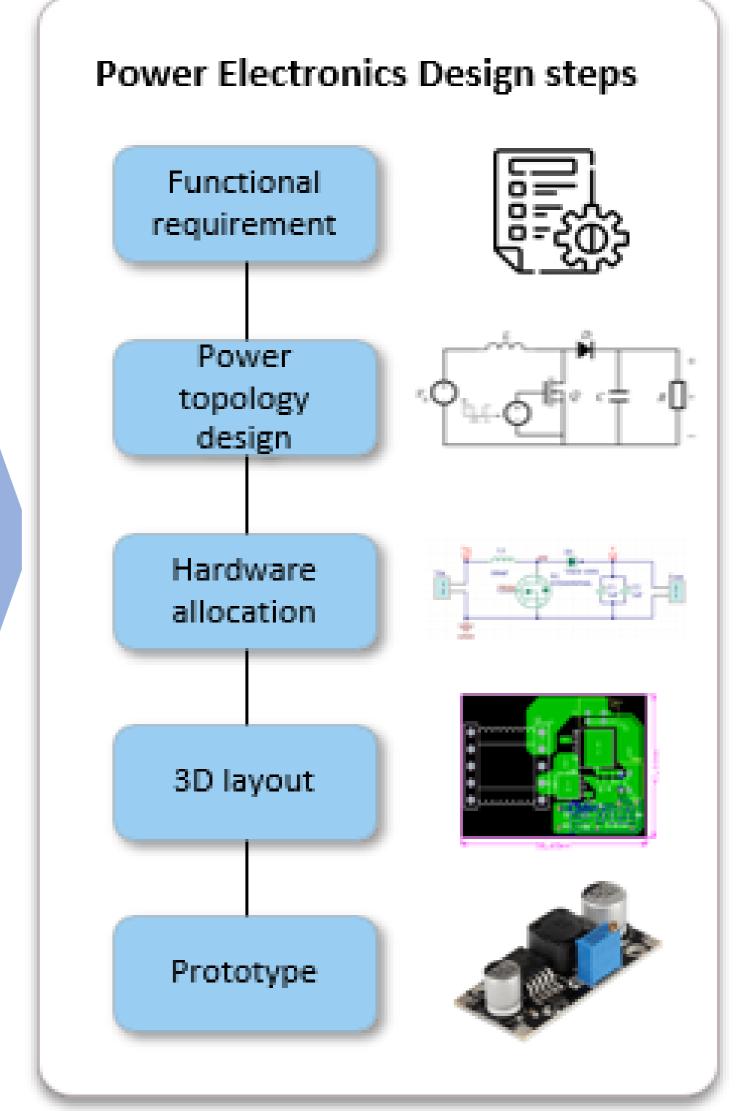


Framework for PLCA-Based Ecodesign Process integration



Open-source software Implementation

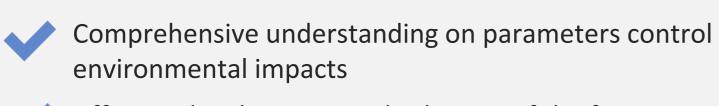
#### **Target PDP for Ecodesign integration**



PE Product Development Process (PDP)

## **Phase 3 : Case Studies**

### **DC-DC Buck Converter**



Efficient development and selection of the finest ecodesign scenario for implementation

## Sound card

- Formalised product development process and adapted ecodesign supports to company's context
- Implemented PLCA based ecodesign process to company's product development process
- Targeted ecodesign levers Short-term action - Energy efficiency: technical block redesign Medium/long-term ecodesign projects identified in R&D and marketing
- Functional innovation : system architecture reconfiguration - Resource sufficiency: components reuse

## **Limitations and Future works**

Electrical design parameters not yet integrated

Establishing links between PE electrical design parameters and PLCA control parameters

Simplified model for repair and reuse processes

Detailing model for specific Rscenarios under repair and reuse

Limited monitoring scope

Towards dynamic and prospective PLCA meta-model for PE

Business model development process is not yet investigated

Integrating PLCA meta-model into upstream business model design

**Developing training** 

Hypothesis on PE design team and value chain actors have fundamental knowledge on LCA and ecodesign

Generalizability of the framework

towards other industrial application

is not yet fully tested and validated

team and Value Chain Actors

Programs for the PE design

Case study in other industries

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