N°122
May 2025

Newsletter
Life Cycle Assessment

SCORE LCA

Scientific publications

A framework for LCA analysis of low TRL products: towards a sustainable approach in early development stages

By incorporating LCA early in the design phase, decision-makers can identify and mitigate potential environmental impacts, fostering innovation that aligns with long-term sustainability goals.

This paper presents the **design and implementation of a framework for the integration of LCA** into the conventional product development process, with a particular focus on its **applicability during early-stage Technology Readiness Levels (TRL)**. The framework aims to address the **challenges of performing comprehensive sustainability assessments** during the **initial phases** of product design, where **data availability is often limited,** and **decision-making** is therefore often **constrained and more complex.**

The proposed methodology leverages **both qualitative and quantitative tools to overcome the uncertainties inherent in low TRL projects**, offering **flexibility and scalability** for a variety of industries.

This work proposed a guideline that encompasses **five fundamental steps: data collection, data evaluation and statistical analysis, LCA, comparative analysis, and integration of various scenarios**.

The prospective assessment described promotes the adoption of more eco-friendly strategies, through the **identification of environmental hotspots**, which in turns guides design modifications, and helps achieve sustainability targets using alternative materials, production methods, or energy sources. Furthermore, the proposed framework aims to ensure consistency and comparability in environmental assessments by **standardizing criteria and methodologies across products and industries**. It streamlines decision-making by providing a unified framework for stakeholders and enhancing early integration of environmental considerations.

Additionally, it helps **anticipate and comply with future environmental standards**, particularly for the product's use and end-of-life stages, thus minimizing future compliance risks and facilitating smoother market entry.

Further studies are necessary to refine the method and tailor it to the needs of industries in different sectors (a deeper understanding of the TRL process in different industries is needed), on the context of a difficult and limited access to the data. Therefore, the aim of this paper is to propose a **general framework** that **can be further refined by industrial applicants, to suit their needs** and **be incorporated into their own TRL development process**.

News about training

📢 New SCORE LCA training on **modelling missing data**: 25/11/25 (Paris)

📢 SCORE LCA is pleased to announce the opening of registrations for the first session of the training course on **modelling missing data** and uncertainties! (capacity: 12 trainees)

❓ **Why to take part to this training course?**

🔎 Are you wondering:
- **how to model missing data in LCA?**
- **how to ensure data quality?**
- **how to interpret in an uncertain context?**

👌 This training is designed to **meet the needs of industrialists:**
- with the collaboration of SCORE LCA's industrial members
- validated by SCORE LCA's Scientific Board
- led by a partner who is an expert on the subjects of data quality and uncertainties interpretation (E.Lees-Perasso, TIDE)

👉 Training based on the SCORE LCA studies, with a **practical workshop format** to anchor the learning from the SCORE LCA studies.

To register, please send an email to contact@scorelca.org

Save the date of next SCORE LCA seminar: March 19, 2026! (PARIS)

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Chain of custody modelling in carbon footprinting & LCA

Carbon footprinting and LCA are moving from average secondary data towards **supply chain specific primary data**, which can be modelled via different chain of custody (CoC) models. Contrary to common LCA practice, there is a push towards CoC models that enable a separation of physical and accounted products: the **mass balance-credit method** and the **book and claim model**.

This article deepens the understanding of CoC modelling options in LCA and identifies corresponding challenges. A three-step research procedure is defined.

1) First, the **five different CoC models**, as described in ISO 22095, are illustrated with the example of a hypothetical organization that uses both inputs with specified characteristics and conventional inputs.

2) Second, the fundamental LCA standards (**ISO 14040/44**) are analyzed for specifications that are relevant for CoC modelling. The five CoC models are then analyzed for their conformity with these specifications. Furthermore, standards, such as **ISO 14067** and **the GHG Protocol**, as well as the carbon footprint guidelines from **Catena-X, Pathfinder, and Together for Sustainability (TfS)**, are analyzed for relevant specifications.

3) Finally, challenges and potential requirements for the use of CoC models in LCA are identified and elaborated.

Main challenges for CoC modelling in LCA are the **avoidance of double counting**, the definition of **consistent allocation rules**, and the definition and enforcement of **adequate requirements**. The decision on which CoC models are to be allowed in LCA and the corresponding requirements depend on value choices. Thus, stakeholder processes are required for consensus finding.

While CoC modelling may gain relevance in LCA, it is important for the LCA community to be aware of **potential challenges and work** towards adequate solutions and requirements.

Upcoming events

Workshop project INFUSE

Do you want you to take part in the INFUSE* (Innovate for Future Sustainable Environments) Franco-Egyptian PHC collaborative project?

The aim of this project is to **strengthen a research collaboration** between LGI-CentraleSupélec and the American University of Cairo (AUC) on the subject of **multi-modal mobility in France and Egypt**, in order to develop a method for **creating eco-innovative mobility solutions** adapted to the contexts of Paris and Cairo. Areas of interest: **health** and **equity issues** related to **urban mobility, accessibility**, the **impact of technologies on mobility**, **governance** and the **influence of the cultural context** on mobility (particularly in the case of walking).

As researchers and mobility users, you are invited to a collaborative workshop in English entitled '**Eco-innovation for health-centric multi-modal transportation Paris-Cairo**', which will be held in two parts at CentraleSupélec - Université Paris-Saclay:

- **Thursday 12/06 10am-12am and/or 2pm-4pm:** Introduction and work on the themes Health and Equity - Mobility and Technology Governance and cultural context in 3 parallel sessions (with rotation).
- **Friday 13/06 10am-12pm**. Synthesis of the problems raised by the Health and Equity themes.

Register here

IMPACT World+ webinar

If you missed the webinar on 18 February presenting the latest version of **IMPACT World+,** a globally regionalized life cycle impact assessment **(LCIA) method developed at CIRAIG** in collaboration with the **DTU,** you can **register to the next webinar on 17 June here.**

12-13 june	24 june	9-12 sept	30 sept - 2Oct	18-19 Nov 2025	19 March 2026
Workshop INFUSE (Paris)	**KOM BATTERS project (Online - 9:30 to 11:30)**	**LCM 2025 (Palermo, Italia)**	**From less bad to good enough (Helsingor, Denmark)**	**Second edition of MCV (Bordeaux)**	**SCORE LCA seminar (PARIS)**

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