

Bridging Epistemology and Methodology in Social Life Cycle Assessment: Developing Tools for Informed Policy Decision-Making

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Introduction

Tackling complex social issues requires coordinated action beyond the private sphere. Well-designed public policies, informed by robust evidence, are essential to address global sustainability challenges. Yet, assessing the social performance of products and services remains a contested and fragmented area of research.

“How can Social Life Cycle Assessment (SLCA) inform public policy and contribute to sustainable decision-making?”

We explore this question in three parts:

- 1. **Epistemological Foundations** – uncovering conceptual roots and tensions in SLCA
- 2. **Expert Consultation** – gathering practical knowledge on social impacts
- 3. **Tool Development** – proposing a systematic methodological framework

1. Can Social Life Cycle Assessment Shape Policy for Global Challenges? – A reflection on epistemology

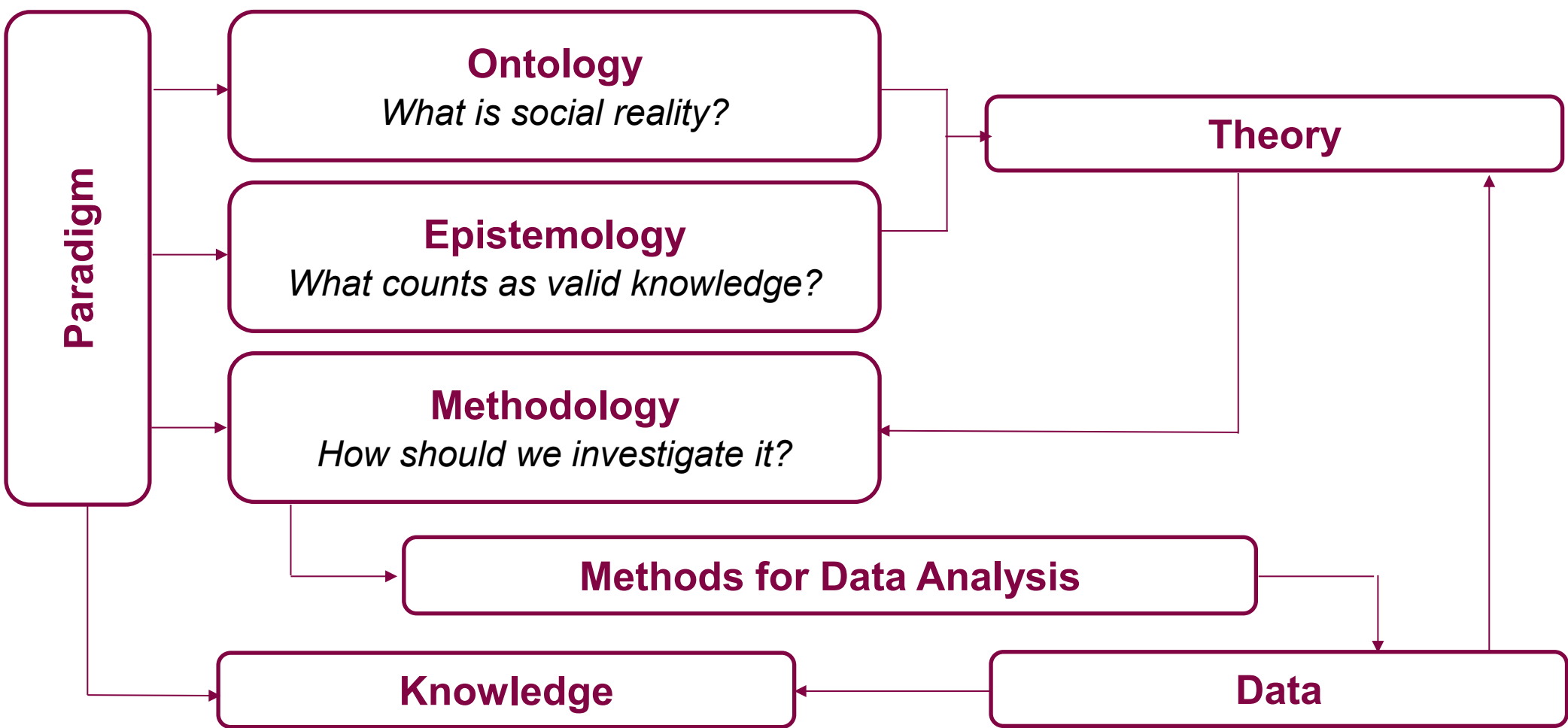
SLCA has emerged as a promising approach for evaluating the social impacts of products and systems. Increasingly, national and international governmental institutions promote life cycle thinking as a foundation for **evidence-based policymaking**, but its application remains limited and contested.

The underlying epistemological challenges

SLCA exemplifies an **essentially contested concept** — a framework shaped by **conflicting normative assumptions and methodological diversity**. Its lack of conceptual clarity undermines the **reproducibility and generalisability of findings** which are particularly important for policymaking. We contend that these issues stem not only from **methodological variation** but from unresolved **epistemological tensions**, particularly regarding what counts as valid evidence in social assessment. From a conceptual standpoint, standardisation efforts such as **ISO 14075** often serve to either *de-contest* or *re-contest* a concept that has undergone proliferation and ambiguity.

The challenges for Public Policy

- **Evidence** may refer to support for policy goals, validation or contradiction of hypotheses, synthesis of results, or contributions to conclusions and inferences.
- SLCA studies lacks **external validity** and **comparability**, which hinders their usefulness for regulatory design, procurement standards, or large-scale monitoring.
- Public authorities require **transparent, reproducible, and generalisable evidence**, hampering **cumulative knowledge**.
- A **post-positivist** and **transdisciplinary approach** is suggested to align some SLCA with the demands of evidence-based policy, while respecting the complexity of social systems and the normative choices involved.



Graph 1. Relationship Between Epistemology, Methodology, and Method (Iofrida and al., 2016; Carter and Little, 2007)

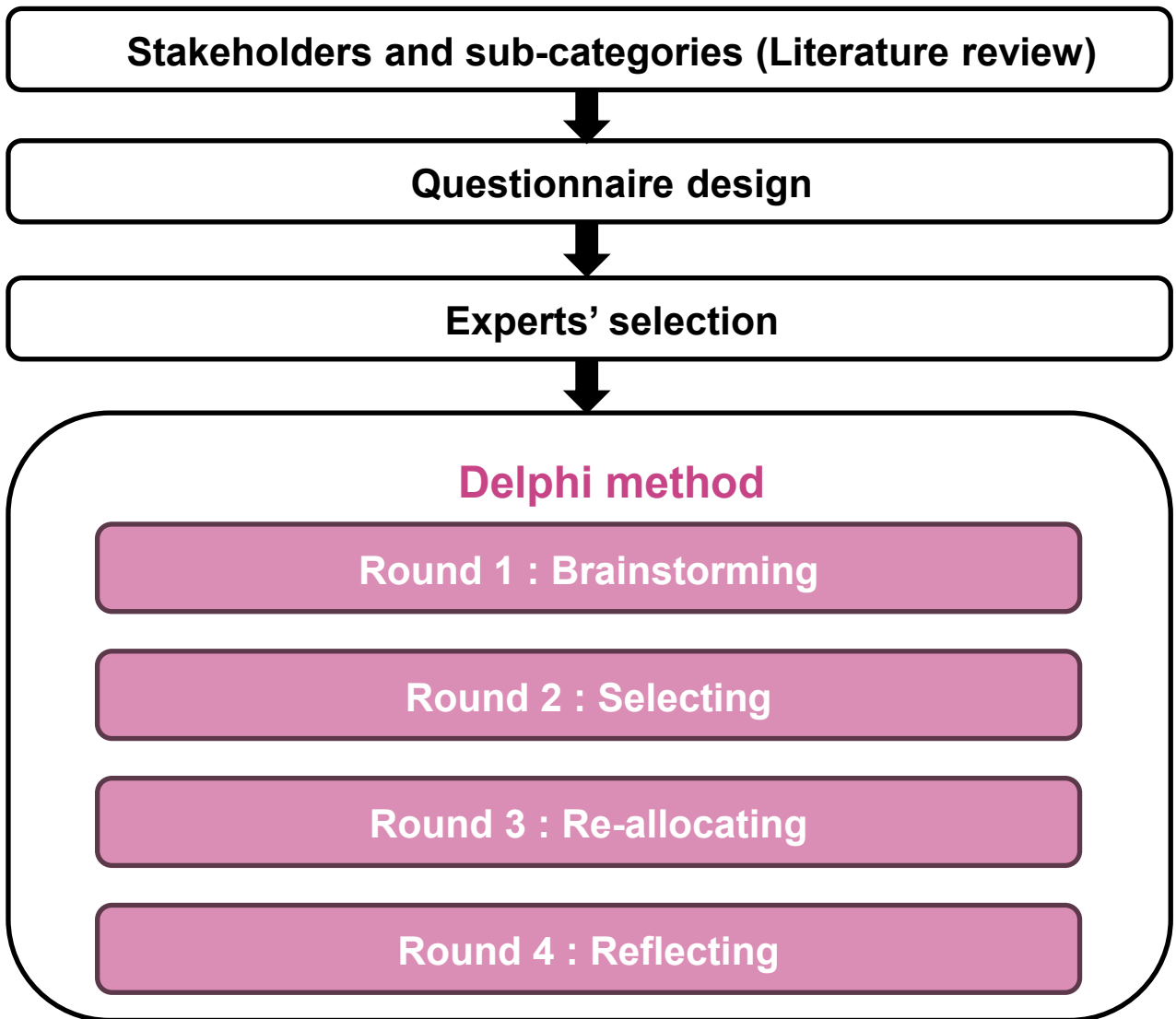
2. Developing a Comprehensive Stakeholder and Hotspot Framework Using the Delphi Method

Objectives

Knowledge about hotspots and criteria in SLCA is uncertain and incomplete. Studies use different terminology and areas that do not constitute an exhaustive list of hotspots.

- 1. Determine **stakeholder groups** to ensure comprehensive coverage of social impacts.
- 2. Develop a robust and universal categorisation of **hotspots** that should always be investigated in SLCA.

Methodology



Graph 2. Methodology design for the Delphi study

“Without a coherent framework of the theoretical roots of SLCA, each researcher is working on small pieces of the puzzle without a clear understanding of the place and importance of this piece in the global design.” (Arcese et al., 2018)

Panel members : 14 SLCA experts from different background (Public policy, Industry, Research) and regions (Africa, Asia, Europe, Latin America)

Survey Distribution: Conducted online using **Qualtrics**.

The resulting framework aims to standardise one version of SLCA, enhancing its validity, credibility and improving its applicability for addressing global challenges and informing public policies.

3. Developing a Systematic Tool for Hotspots Identification : using Best-Worst Scaling as a pre-screening

Best-Worst Scaling Method (BWS)

BWS is an **attribute prioritisation method** in which respondents select the best and worst items in a series of choice sets.

Most Important	Items	Least Important
	Sub-category 1	
X	Sub-category 2	
	Sub-category 3	
	Sub-category 4	X

e.g., Please consider the social challenges in the table above and tick which concerns you most and which concerns you least.

Considering just these four features, do you think that:

- None of these four is important
- Some are important, some are not
- All four are important

Graph 3. A completed example BWS question

Acknowledgements

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- Thanks to Pr. Kate Harvey for her great help in the Delphi Method.

Advantages :

- It serves to identify preferences and trade-offs that contribute to individuals' choices with respect to “goods.”.
- It has been noted for its cognitive and administrative simplicity, and it focuses on the subject's perspectives.

Objectives :

- 1. Develop a systematic method that is reproducible to identify hotspots (improving external validity)
- 2. Weight the importance of each potential hotspots (Sub-categories)

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References

