

Bridging Epistemology and Methodology in SLCA: Developing Tools for Informed Decision-Making

Jessica Bosseaux | Eugene Mohareb | Carol Wagstaff

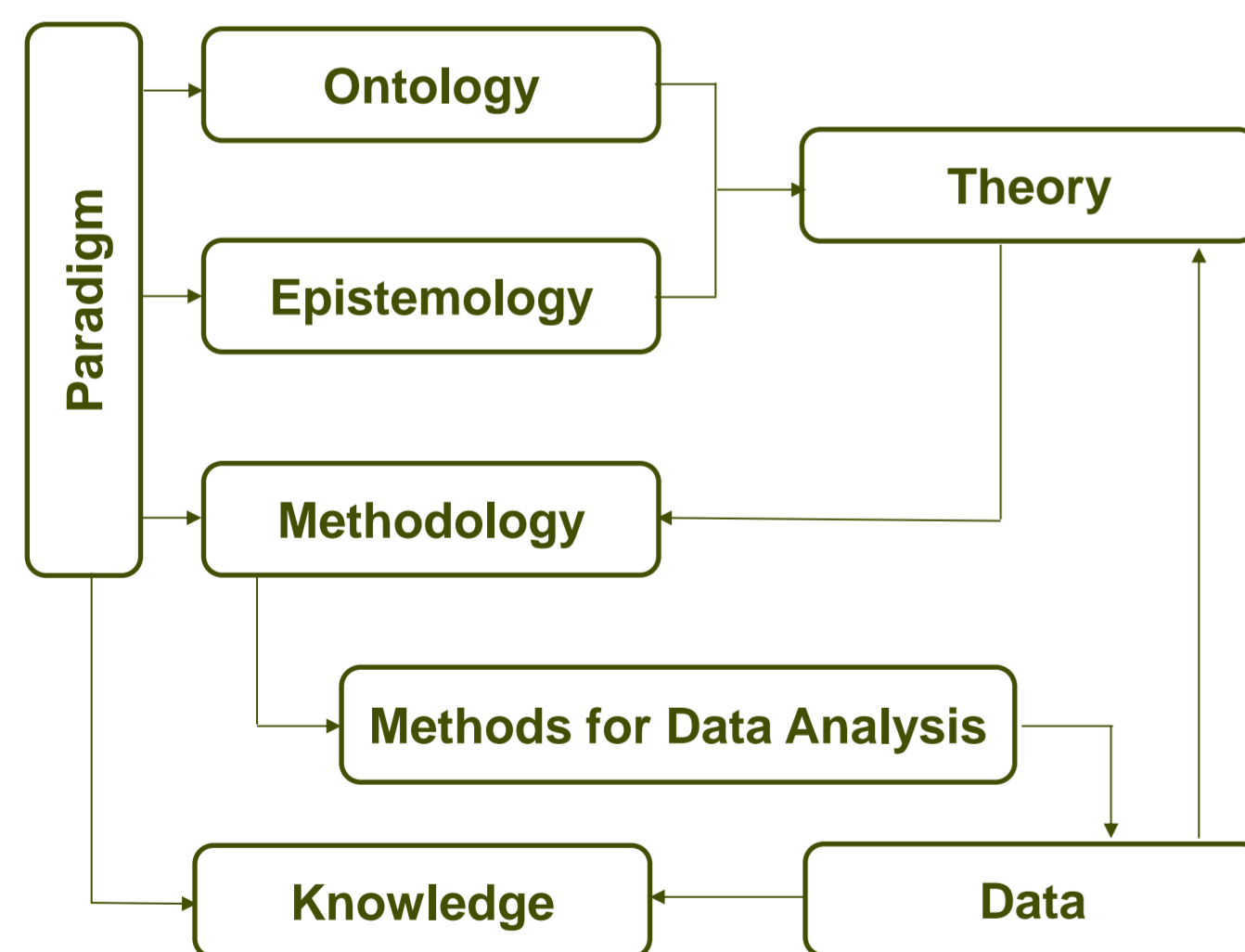
Introduction

Social issues, given their complexity and far-reaching impacts, cannot be addressed solely by individual or corporate actions; they require the active involvement of public authorities through well-designed public policies. The complexity of estimating the social performance of products and services is sparking interest and debate within sustainability assessment research community). The main question that is addressed in this series of studies is as follow :

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

We address this issue in three steps :

1. The root of this issue :
Epistemological background
2. Practical understanding of social impact :
Consulting experts
3. Development of a tool :
Methodological response



Graph 1. Relationship between paradigms and methods (Iofrida, De Luca, et al., 2018)

1. Can Social Life Cycle Assessment Address Global Challenges? - A reflection on epistemology

This study questions the appropriateness of applying ELCA's research design to social contexts, highlighting the epistemological dilemmas raised in the literature. The multifaceted nature of social science necessitates a **variety of approaches**, stem from underlying epistemological stances, which shape how social impacts are understood and assessed.

The underlying epistemological challenges

Paradigms in ontology (nature of reality), epistemology (nature of knowledge), and methodology (data collection methods) influence SLCA. They shape methodological choices, including data collection method (primary, secondary), types of data (1 or 2), analysis, and interpretation (Pathways). It raises the important case of **external and internal validity**, The effectiveness of SLCA in providing decision support for public policy has been questioned, with its relevance often found to be limited.

The challenges for Public Policy

- Ensuring external validity is particularly crucial for addressing global challenges and informing policy decisions at national and international levels.
- “*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)
- Achieving clarity in SLCA methodologies and harmonising indicators is crucial for ensuring consistency and improving systems of knowledge generation through the reproducibility of studies.

References

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2. Grubert, E. (2018). Rigor in SLCA: Improving the scientific grounding of SLCA. The International Journal of Life Cycle Assessment, 23(3), 481–491.

Contact information

- Department of Agriculture, Policy and Development, University of Reading, Whiteknights, RG6 6AH
- Email: j.bosseaux@reading.ac.uk
- <https://www.reading.ac.uk/agri-food-economics-marketing/our-staff/dr-jessica-bosseaux>

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

Objectives

This study seeks to establish a reproducible and systematic framework for gathering knowledge about hotspots in SLCA. Specifically, it aims to:

1. **Identify inevitable stakeholders:** Determine which stakeholder groups must be systematically considered in all SLCA studies to ensure comprehensive coverage of social impacts. This includes specifying their roles, influence, and relevance across various contexts and industries.
2. **Define unavoidable hotspots and impact categories:** Develop a robust and universal categorisation of hotspots that should always be investigated in SLCA. This involves aligning terminologies, addressing gaps in current approaches, and creating a foundation for consistency across studies.

Methodology

Problem area : The knowledge about the hotspots and the criteria in SLCA is uncertain and incomplete. Studies are using different terminology and areas that does not constitute an exhaustive list of hotspot.

Panel members : Fourteen experts from different background (Public policy, Industry, Research) from different continents (Africa, Asia, Europe, Latin America)

Survey Distribution: The rounds are conducted online using Qualtrics.

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

References

1. Linstone, H., & Turoff, M. (1975). The Delphi Method: Techniques and Applications. In Technometrics (Vol. 18).
2. Nasa, P., Jain, R., & Juneja, D. (2021). Delphi methodology in healthcare research: How to decide its appropriateness. World Journal of Methodology, 11(4), 116–129.

Acknowledgements

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

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

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 2. A completed example BWS question

Advantages :

- It serves to identify preferences and trade-offs that contribute to individuals' choices with respect to “goods.”.
- It has been noted for their 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)

References

1. Flynn, T. N., & Marley, A. a. J. (2014). Best-worst scaling: Theory and methods. In Handbook of Choice Modelling (pp. 178–201).
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