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project websites:
https://bridgingsustainability.leuphana.de/
www.leuphana.de/zentren/cgsc/forschung-projekte/bridging-the-great-divide-in-sustainability-science.html

Bridging The Great Divide in Sustainability Science

Linking High-Performance Modeling and Transition Experiments to Foster Transformational Change Towards Sustainability

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Project summary

Sustainability challenges threaten the long-term viability and integrity of societies around the world. While the theoretical understanding of these challenges continues to grow, solutions are far less developed. In response, sustainability science has been developing a research agenda that focuses on evidence-based solutions that are scalable and transferable. Yet, there is still a significant gap between understanding complex challenges and contributing to context specific solutions.

Concept & Approach

This proposal aims to build additional capacity at Leuphana University of Lüneburg to bridge the divide between

- modeling and understanding of complex sustainability problems (often on a global scale)
- developing and evaluating contextualized solution efforts (often on a local scale).

Focusing on water, land-use, and climate change challenges, two prominent approaches will be combined: high-performance computational modeling and transition experiments. Combining these two approaches and supporting interdisciplinary collaboration across the related academic communities while building on disciplinary excellence defines the agenda for a future cluster of excellence. This will also be a major leap towards bridging the knowledge-action gap in sustainability science. These questions will be addressed by adopting an interdisciplinary research framework that structures the knowledge-action loop by linking:

- data-driven screening for suitable locations and contexts to make transition experiments more effective and

efficient

- ex-ante testing of transition strategies to improve their performance and impact
- generalizing context-specific insights about solutions from transition experiments, including ex-post evaluations, to advance scalability and transferabilit
- up-scaling findings from transition experiments into high-performance computational models to improve their validity, transferability, and explanatory power.

Mobile Solution Theaters will be developed as advanced collaborative settings to facilitate activities and synthesize insights across the loop. A media culture and critical epistemology perspective will allow reflecting on assumptions and implications across the loop. Finally graduate and postgraduate junior researchers will be trained in innovative research-teaching settings across the loop, and thereby in bridging the great divide in future sustainability science.

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