

Introduction

Systems approaches are embedded across the LUNZ Hub and research projects, in our approaches to modelling, critical thinking on transitions, stakeholder engagement, co-design and more. They are central to our interdisciplinary approach.

In September 2024, the LUNZ network held a workshop to identify systems approaches that are in use across our community, reflect on which are most valuable, and draw out insights that could strengthen engagement with government partners. This was requested by Defra, which actively promotes systems approaches across government.

This note summarises the key ideas and suggestions from the workshop.

Understanding Systems

The most important features of systems approaches in LUNZ were identified as:

- **Integrating** diverse social and ecological components and considerations in a holistic approach.
 - Bringing **multiple perspectives**, from diverse specialisms, value frames or stakeholders.
 - Embracing **complexity**, picking out patterns in the noise.
 - Highlighting **boundaries** and the limitations they imply (e.g. to the scope of analysis).
 - Focusing on **relationships** - understanding entities in their context and discerning the key connections.
 - Identifying **levers of change**, which may be unexpected.
 - Discerning **feedbacks** to understand how systems adapt.
 - Seeing **impacts in the round**, including across multiple outcome areas, end-to-end, unintended consequences and ripple effects.
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Useful Tools

The tools that were most valued by this group were:

- Leverage points analysis
- System dynamics modelling
- Critical systems thinking and boundary critique
- Causal loop diagrams
- Fuzzy cognitive mapping
- Stakeholder / expert advisory groups to test ideas and identify interdependencies
- Stakeholder perspective mapping
- Multiple scenarios approaches for land use planning
- Integrated modelling frameworks
- Resilience thinking
- Using the past to help conversations about the present and the future (e.g. focusing on historic environment, deep-time paleoecology)
- Place-based research informed by time and space dimensions
- Source-to-Sea (S2S) approach

The Systems Innovation Network was recommended as a valuable toolbox and worldwide database of systems practitioners.

Engaging with Government

The group discussed how systems approaches could strengthen and clarify the LUNZ network's engagement with government partners, and highlight how the network adds up to more than the sum of its parts. Ideas included:

- Mapping LUNZ work packages and research projects onto relevant existing system maps used within government (e.g. by Defra and DESNZ), where these can be shared
 - Audience-led engagement, tailoring our communications of LUNZ activities to specific policy teams (e.g. GHG inventory, agri-environment, crop health, animal welfare)
 - Offering an overview of LUNZ activities through one or more systems lenses, for example focused on the:
 - Boundary questions arising or being addressed.
 - Multiple outcomes, co-benefits or synergies (nexus approaches) identified.
 - Relationships with overlapping or adjacent systems (e.g. global food system).
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LUNZ Network Support

Many of the LUNZ network members are experienced in systems approaches and available to support research, policy development and practical decision-making. To get in touch, please contact:

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