BEYOND TRADE-OFFS AND SYNERGIES: TOWARDS MORE ACCURATE ANALYSES OF SDG INTERLINKAGES

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Key takeaways:

- **Take Systems Thinking Seriously:** as an ancient as well as novel ontology, and move towards whole-network analyses of complex interlinkages, beyond simple trade-off/synergy matrices.
- **Focus on Systemic Leverage Points:** the SDGs that hold the greatest potential for systemic effects within specific contexts, rather than relying on global aggregates.
- **Re-Evaluate Ends and Means:** A new agenda should define the economy as a means to achieving sustainability not a goal in its own right, relegating SDG8.1 (Economy) to a means of implementation for achieving the SDGs, along with the others in SDG17 (Faul, 2018).
- **Fund Regional Knowledge Production:** Designing the next global agenda—and achieving the 2030 Agenda—requires significant funding for researchers in and from the Global South to respond to regional needs. This is not only a matter of equity but also a pragmatic requirement for accurately identifying regional leverage points.

The Sustainable Development Goals (SDGs), targets and indicators are considered to be interdependent, such that progress on one can affect progress on others. Successive waves of research methods have been used to the analyse the interlinkages between different aspects of sustainability in different ways, giving different answers to the questions:

- Which aspects of sustainability are connected?
- In what ways?
- With what implications for policy?

Narratives of trade-offs and synergies obscure systemic risks and leverage points that may differ by region, income-group, and more. Complexity-informed network analysis can detect real nexuses: clusters of goals with strong internal interdependencies that can unlock systemic advances across the entire Agenda 2030, and be used in designing the next sustainability agenda. We conducted a synthetic review of research into interlinkages between aspects of sustainability, categorising five successive methodological waves that differ in how they think about and calculate these links.

The first—conceptual—wave characterises economy, environment and society as pillars, or overlapping circles of a Venn diagram. Moving beyond this, Raworth (2017) conceptualises Rockström's (2009) planetary boundaries as an "ecological ceiling" combined with her "social foundations," redefining the economy not as an objective in itself, but rather as a means for ensuring that humanity stays within this "safe and socially just space" (p. 39).

The second wave moves to empirical analysis, with Nilsson et al. (2016) categorising interlinkages between pairs of SDGs as linear trade-offs, where action to enhance one aspect of sustainable development will result in harmful effects on another, or conversely as mutually reinforcing synergies across different aspects of sustainable development. Calculating these linear relations assumes no variability in the direction and rate of change in the relationship between one pair of SDGs.

In the third wave, O'Neill et al. (2018) conducted cross-country, cross-indicator comparisons for 150 countries on seven indicators of biophysical boundaries and 11 of social foundations. The authors conclude that most real-world relationships do not change in a simple straight-line way. Instead, effects often speed up, slow down, level off, or reverse depending on the