

Scenarios for sustainable future in 2050- using system dynamics to enhance foresight for better policy insight

This study applied the Causal Loop Diagramming (CLD) method in the foresight project Scenarios for a Sustainable Europe in 2050 (SSE2050). The CLD analysis draws upon the main results of the project SSE 2050 (EEA/EIONET NRC FLIS, 2020; EEA/Eionet NRC FLIS). The STEEP approach is used as bases together with qualitative modelling by combining the *Foresight Scenario method* with the system dynamic modelling.

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The **questions posed** for the scenarios were following:

- What are important cause and effect relationships and feedback-loops steering behaviour?
- What are the success and limiting factors that enable the scenario in its current form?
- What items need to be added to enable continuity/plausibility of the scenario?
- How is dynamic behaviour expressed in the scenarios?

Results

The policy interpretation is influenced by the explicit language of CLD key factors.

The scenarios tend to highlight a reinforcing behavior and omit limitations.

Conclusions

1. Framing the narratives by creating a dynamic storytelling CLD provides a flexibility of scaling.
2. CLDs identifies short-comes and strengths and how it translates to robustness of the narrative.
3. Clearer connection to external systems outside of narrative (sub-systems, and global).
4. Identification of actors and activities connected to policy and indicators for success.
5. Strengthens further work with signals and trends in horizon-scanning.

