2023

Circular Cross-Scalar Governance Spiral

Luthe, Tobias and Fitzpatrick, Haley

Circular cross-scalar governance spiral

Designing for bio-regional regeneration

Authors: Tobias Luthe, Haley Fitzpatrick, Daniel Wahl (2023)
Download a digital poster version here:

Guiding thoughts

Operationalizing design for regeneration:
A navigation tool for decision making in complexity, within each scale, and across scales of governance.

8 nested scales of governance: green chemistry to transnational cooperation.

Each scale has inherent complexities with min. 5 types of circular flows. With open, porous system boundaries.

Decisions on one scale have direct or indirect impact on all other scales: governance to better consider cross-scalar systemic effects through "zoom out zoom in" practice (meta design, view from above, ...).

No matter what initial focal scale we start with, the cross-scalar design thinking will lead to similar intervention pathways.

Weaving: toggling between place-based specificity and the meta perspective, where this spiral is of guidance.

Spiral

Scales are in spiral relation with each other.
Multiple spirals of 8 scales are nested and relate with each other across space and time.

Spiral feedback logic captures cyclical growth and emergence across nested scales as a recursive process.

The mathematical foundation is the Fibonacchi spiral: a common functional pattern occurring throughout nature, it provides an analogy for better communicating the scalar processes of designing and governing resilient regenerative systems (Drozdyuk and Drozdyuk, 2010).

Physics: spirals emerge at lowest-energy configurations that self-organize in dynamic systems (Steen, 1988).

Chemistry: spirals evolve as reaction-diffusion processes that promote activation and inhibition.

Biology: spirals optimize spatial usage and resource access (Douady and Couder, 1992).

In cultures world-wide, spirals symbolize creative growth, power of life and spiritual awareness (Ashby, 2019).

Autopoiesis: systems are capable of reproducing and maintaining themselves, producing more of their own complexity than the one produced by their environment (Gershenson, 2014; Maturana and Varela, 1980).

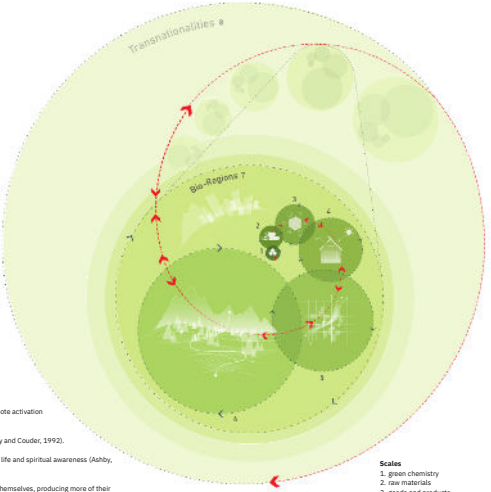
Sympoiesis stress the relevance of interrelationalities in shaping systems: Nothing makes itself; nothing is really autopoietic or self-organizing. **Symbiogenesis** enfolds and extends autopoiesis (Haraway, 2016).

Bio-regional scale

Bioregionalism asks us to reimagine ourselves and the places where we live in ecological terms and to harmonize human activities with the natural systems that sustain life (Berg, 2015).

The bio-regional scale is critical for collective health across nested systems (Hancock et al, 2017).

The region is the scale to generate the highest impact by leveraging cross-scalar interaction through maximized resource access and optimized space-harvest (Wahl, 2016). It has the required size to include sufficient diversity and amount of elements and relations to enable the transition to an economy that is regenerative.



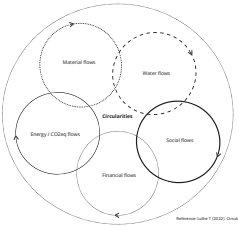
Reference: Luthe T, Fitzpatrick H and D Wahl (work in progress)

Scales
1. green chemistry
2. raw materials
3. goods and products
4. buildings
5. communities, cities, services
6. landscapes
7. (bio) regions
8. transnationalities

Circularities - 5 types of circular flows

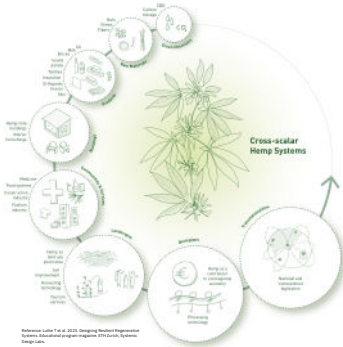
Highlighting the continuous reciprocity of flows within, and across scales.

Social flows are underrepresented in the ongoing discourse of circularity, but essential: A large part of the regeneration paradigm lies in social circularity, in nurturing mutual social place-related benefits.



Reference: Luthe T (2022). Circularities. (work in progress)

Illustration - the hemp system transition



Reference: Luthe T et al. 2023. Designing Resilient Regenerative Systems. Educational program magazine. ETH Zurich, Systemic Design Labs.