## Circular cross-scalar governance spiral

## Designing for bio-regional regeneration

#### Guiding thoughts

Operationalizing design for regeneration in making in co exity, within each A naviga scale, and across scales of governance.

8 nested scales of governance: green chemistry to transnatio

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: enversance to hetter consider cross-scalar systemic cts 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 othe Multiple spirals of 8 scales are nested and relate with each other across space and time.

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

The mathematical foundation is the Fibonacchi spiral: a on functional pattern occurring throughout natu provides an analogy for better communicating the scalar processes of designing and governing resilient regenerative

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

Chemistry: spirals evolve as reaction-diffusion processes that promote activat 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,

Autopolesis: systems are capable of reproducing and maintaining themselves, producing more of their lexity than the one produced by their en onment (Gershenson, 2014; Maturana and Varela 1000)

Sympolesis stress the relevance of interelationalities in shaping systems: Nothing makes itself; nothing is really autopoietic or self-organizing. Symblogenesis enfolds and extends autopoiesis (Harawy, 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.

### Circularities - 5 types of circular flows

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

vs are underrepre d in the ongoing disc uity, but essential: A large part of the regeneration paradigm lies in social circularity, in nurturing mutua ocial place-related henefits



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Transnationalities a

Bio-Regions 7





- 4. buildings
- 5. communities
- 7. (bio) regions 8 transnationalities

# Illustration - the hemp system transition

