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Innovation and sustainability – Friends or foes?

LEA FUENFSCHILLING, MISSIONS FOR SUSTAINABILITY:
NEW APPROACHES FOR SCIENCE AND SOCIETY, 2022



Overview

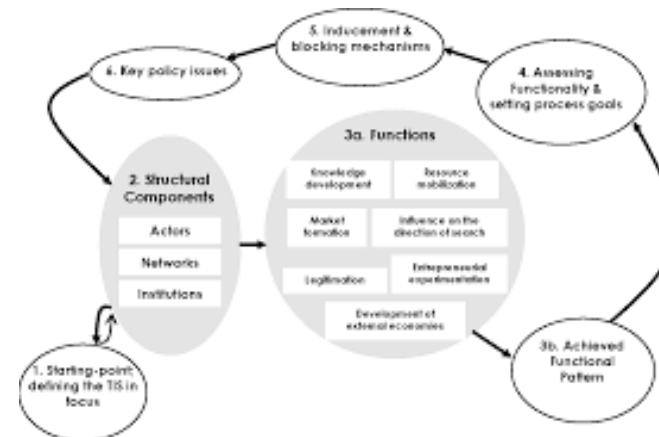
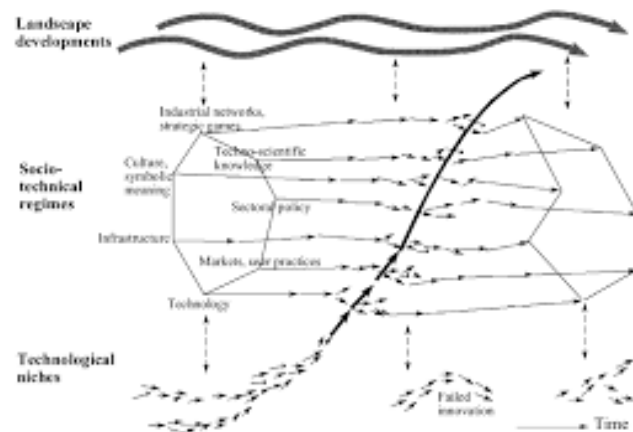
- 1) **Sustainability and transitions:** The role of deep-structural, socio-technical change for sustainability transitions
- 2) **Transitions and innovation:** The role of innovation for deep-structural, socio-technical change
- 3) **Innovation and sustainability:** The role of innovation for sustainability and implications for policy

Sustainability and transitions

- Basic assumption: **Sustainability requires changes of production and consumption practices**
 - **Systemic** → Interdependencies
 - **Socio-technical** → Co-evolution of material and social elements
 - **Deep-structural** → Radical, path-breaking, (not incremental)
- **Sustainability (socio-technical) transitions** (Köhler et al. 2019, etc.)

Transitions and innovation I

- Sustainability transitions as innovation's heyday
- Link between innovation and change: **notion of creative destruction**
- Most theoretical frameworks in transition studies have a strong innovation focus (MLP, SNM, TIS, etc.)



Transitions and innovation II

Innovations prove insufficient for replacing established socio-technical systems

- 1) Path-dependency, incremental innovation (Dosi 1982, Nelson & Winter 1977)
- 2) Co-evolution, regimes (Geels 2004, Fuenfschilling & Truffer 2014)
- 3) Decoupling, symbolic changes (Meyer & Rowan 1977)
- 4) Deep transitions, multi-level effects (Schot & Kanger 2018, Feola 2020)

Innovation and sustainability I

- **Innovation bias** based on the notion of creative destruction
- Conflation of innovation and change
 - Innovation → innovation systems → system innovation
- Especially visible in **governance** questions: transformative innovation policy, mission-oriented innovation policy
- **What is the role of innovation for system change?**
- **What are the limitations of innovation policy in responding to societal challenges?**

Innovation and sustainability II

- **For new things to emerge and institutionalize, other things need to disappear (?)**
- **What else besides innovation leads to de-institutionalization?**
- **Some work in the transition's community on this topic:**
 - regime destabilization (Turnheim & Geels 2012)
 - phase-out policies (Rogge & Johnstone. 2017, Kivimaa & Kern 2016)
 - discontinuation as governance problem (Stegmaier, et al. 2014; Newig et al. 2019)
 - deliberate decline for decarbonization (Rosenbloom & Rinscheid 2020)
 - unlearning and unmaking (Feola 2019, Feola 2020)
 - exnovation (Heyen et al. 2017)



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