

# Transformative innovation policy: a supplement or a substitute for systems of innovation? Insights from ecological economics

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*„Framings evolve over time and change when they are perceived as inadequate for current circumstances”  
(Schot & Steinmuller, ResPol 2018: 1554)*

- The dominant current framing of innovation policy: **systems of innovation**
  - Criticism of (numerous) neoclassical presumptions
  - Growth oriented economic policy
  - The ability of the state to shape a competitive nation
- A potential new framing: **transformative innovation policy**
  - The need to align „grand challenges” with innovation objectives
  - Innovation cannot be equated with social progress even when corrective policies are at place





- **Research question:** Are the transformative and the IS framings complements or substitutes?
  - **If complements:** refining of the IS frameworks
  - **If substitutes:** forget about the IS framework
- **Conceptual paper:** attempts to clarify innovation systems

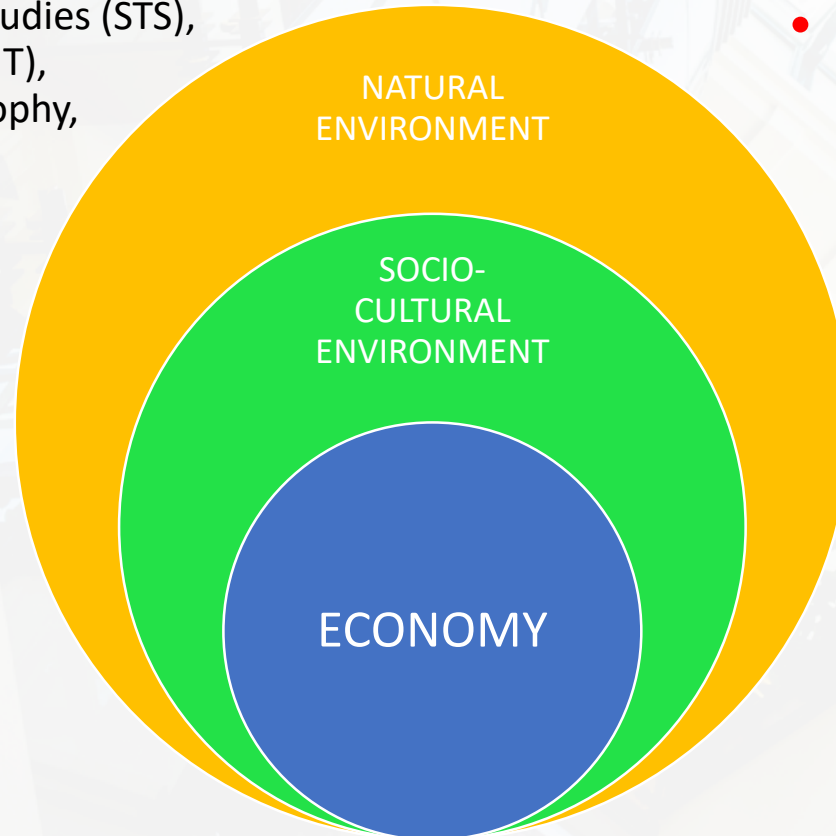
## Outline of the presentation

1. Transformation (sustainability transition)
2. IS as an analytical framework
3. IS as a normative framework
4. Conclusions and future directions



## Background:

- System transformation, transition management, Multi level perspective (MLP) (*Geels, Kemp, Schot, Voß...*)
- Science and technology studies (STS), Actor-network theory (ANT), Critical technology philosophy, Social construction of technology (SCOT)



- Changing of socio-technical systems (energy, mobility, food, water, healthcare, communication...)
- **Technological fix → fixing technology**
  - Multi-actor, multi-level, non-linear process
  - De-stabilization & re-construction (political)
  - Uncertain, difficult to manage



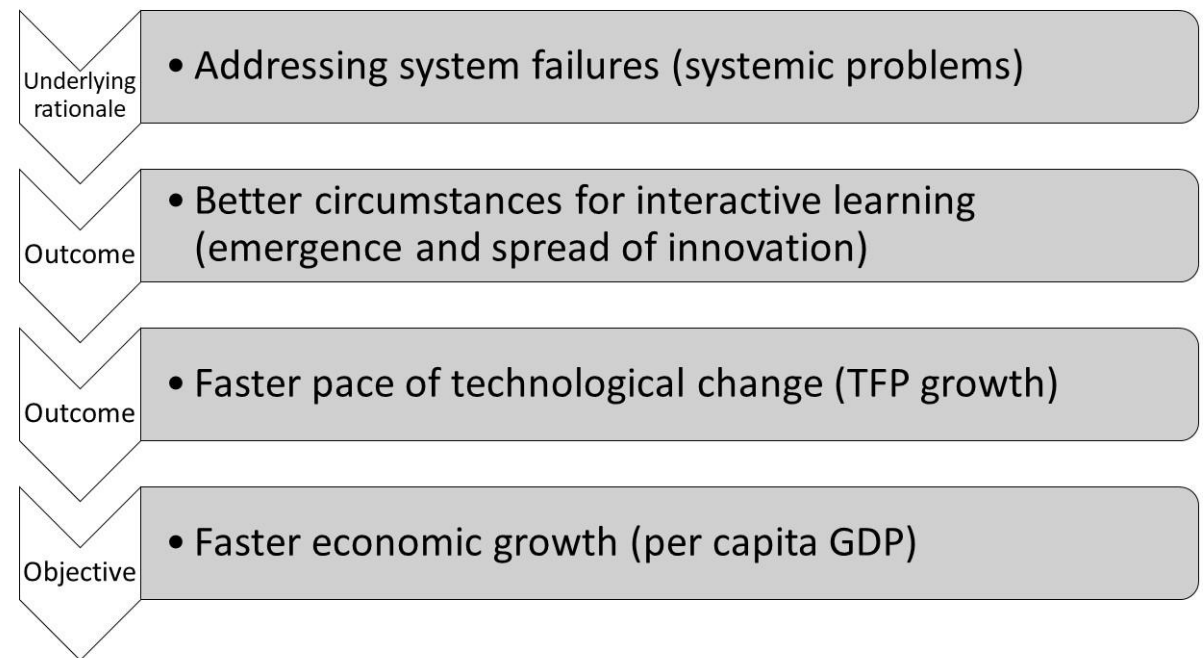
- The evolutionary roots
  - Non-predictable, non-linear change
  - Presumptions about the actors: bounded rationality
  - Understands the limits to policy-making under such circumstances
- Open-ended approach
  - Diversity of systems (historic roots)
  - Multiple actors
  - Drawing attention to the diversity of influencing factors (instead of providing a closed list) – the approach can be well adapted to different analytical aims



# Innovation systems as a normative framework

- Growth-oriented
- De-politicised
- Incoherent view of technological change (embedded into economic processes – but lack of consideration of social and environmental embeddedness)
  - Embracing factors that affect TFP growth
  - Neglecting everything else

*„I assume that objectives – whatever they are – are already determined in a political process. ... With regard to innovation policy the most common objectives are formulated in terms of economic growth, productivity growth, or employment.”*  
(Edquist, 2002: 220)



Source: own construction





## Theses

1. Innovation systems as a normative framework is unsuited to serve as a basis for transformative innovation policy (sustainability transition).
2. Innovation systems as an analytical framework could still remain useful for researching the sustainability transition in the field of innovation policy; however they need to be supplemented.

## **My claims on the required changes in the concept of IS (possible future directions)**

1. The concept of systemic failure
2. System boundaries
3. Innovation networks

# Conclusions and future directions



1. Rethinking the concept of systemic failure

2. System boundaries

3. Innovation networks

1. Regime vs niche actors
2. Power differences (alongside multiple hierarchies)
3. Reinforcing or altering hierarchies
4. Missing actors

## Weber-Rohracher (2012)

1. Directionality failure
2. Demand articulation failure
3. Policy coordination failure
4. Reflexivity failure

## Bajmócy-Gébert (2014)

- Failure to generate and diffuse knowledge:
1. ideologies and hegemonies lying behind current innov. processes
  2. feedbacks of the system on which we act on when we use technologies
  3. ability of the society to adapt to changes
  4. moral judgements

### Innovation systems

*technology is economic*

- Product
- Process
- Organizational
- Marketing

### Transformative

*technology is embedded*

- Artefact
- Technique
- Socio-technical system of production
- Socio-technical system of use





# Thank you for your attention!

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