

Shaping technology systems: critical issues for sustainability governance

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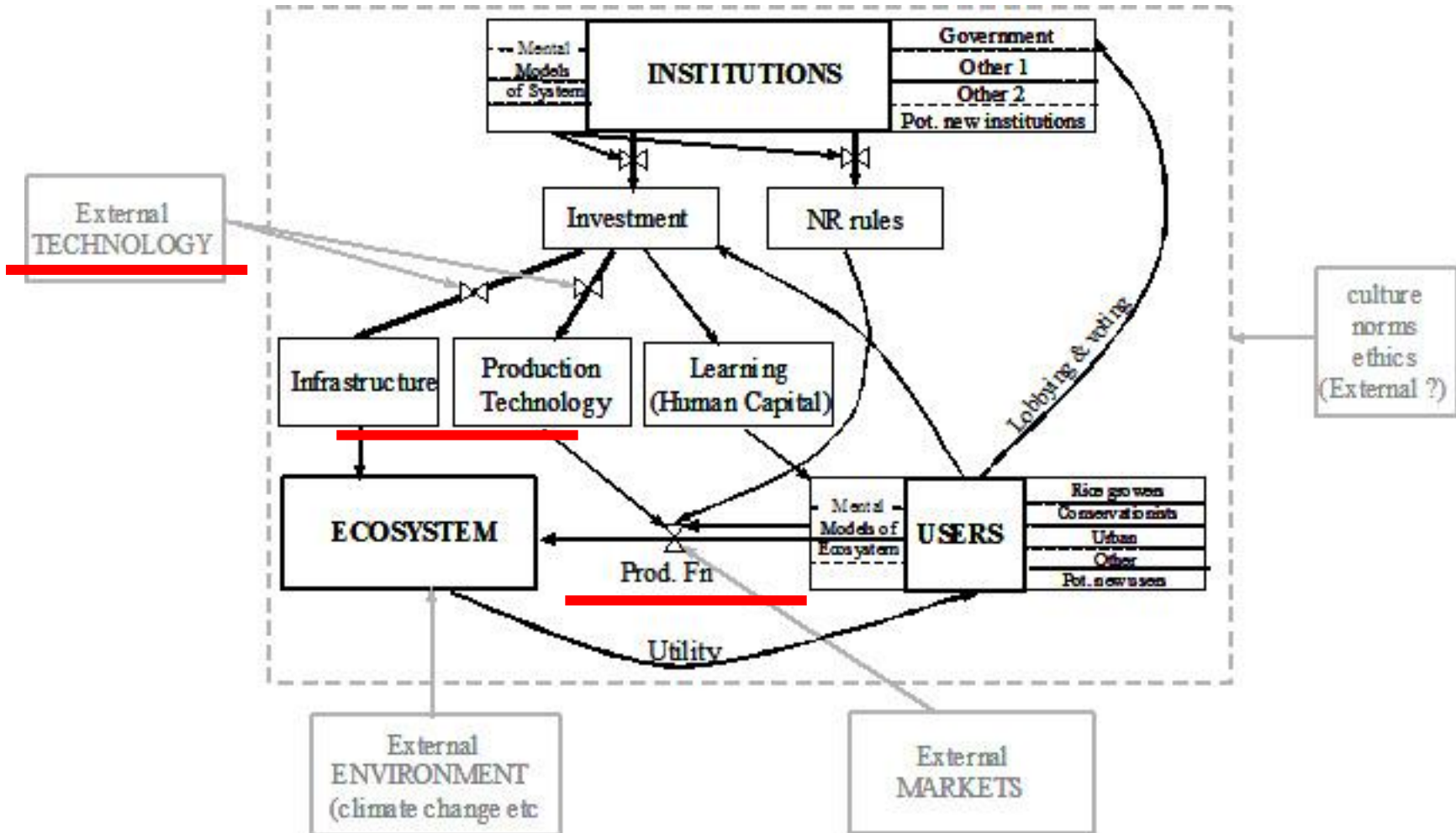
IHDP Berlin Conference 2008
Long-term policies: governing socio-ecological change
Panel on Shaping System Dynamics

Overview



- Technology in socio-ecological change
- Socio-technical perspective and regime transitions
- Transition management
- Critical challenges in governing socio-technical transition
- Implications for socio-ecological resilience
- Summing up: panel questions

Technology in socio-ecological systems



Source: <http://www.resalliance.org/563.php> (accessed 25/1/2008).

RA present this as their 'most recent conceptualisation' of a socio-ecological system.

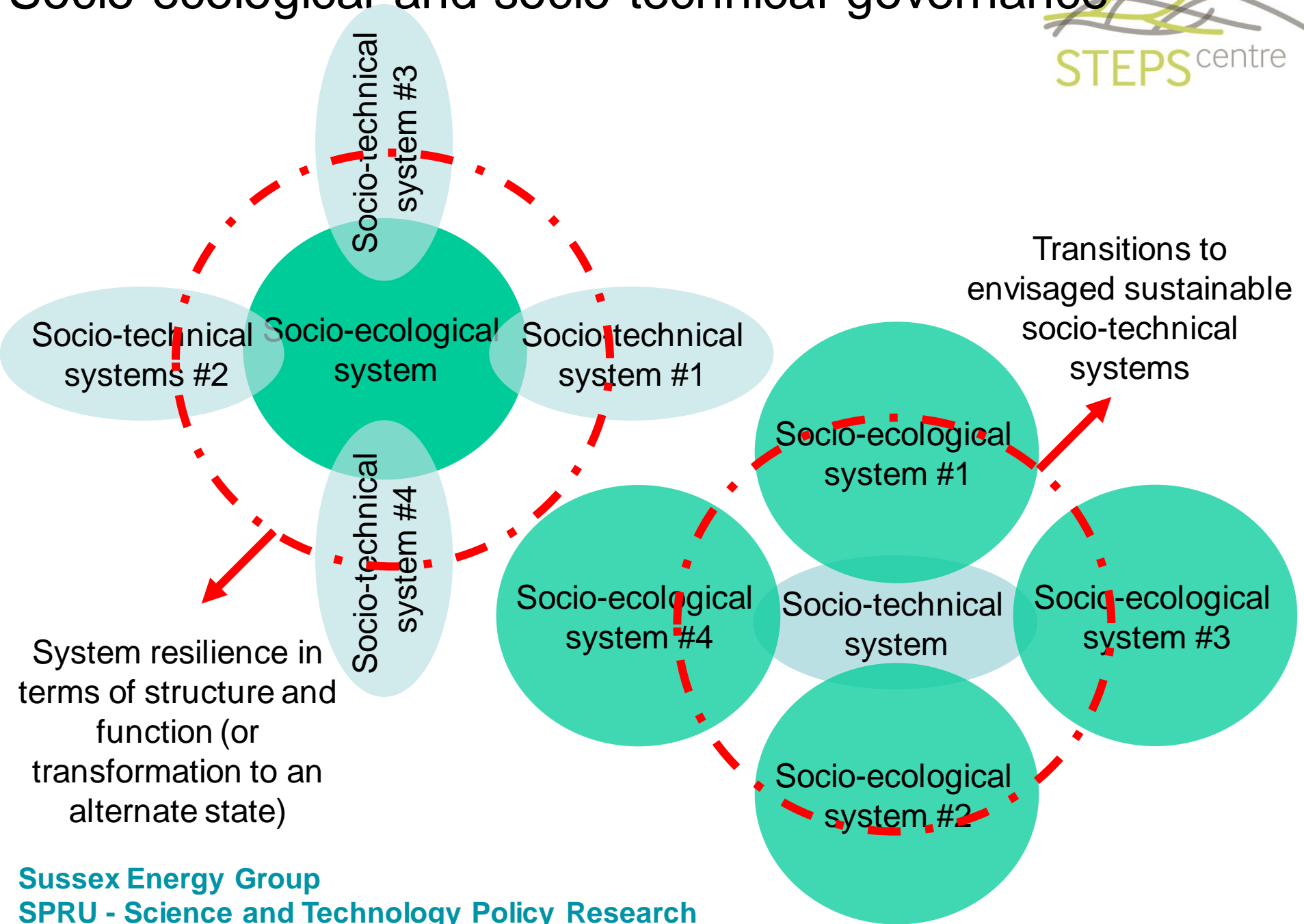
Illustrative roles in socio-ecological change (Berkhout and Gouldson):

- Monitoring technologies (e.g. satellites)
- Driving socio-economic development (e.g. ICTs, new materials)
- Cleaner technologies (e.g. renewable energy technologies)
- Remediation technologies (e.g. biotech in contaminated land)

Need to understand dynamics of technological change

NB: Technology development and use is a social process

Socio-ecological and socio-technical governance



Socio-technical transitions to sustainability



Socio-technical perspective:

Attend to social and technological interdependencies in development of practices

Multi-level model:

socio-technical shifts proceed through interacting niche, regime and landscape processes

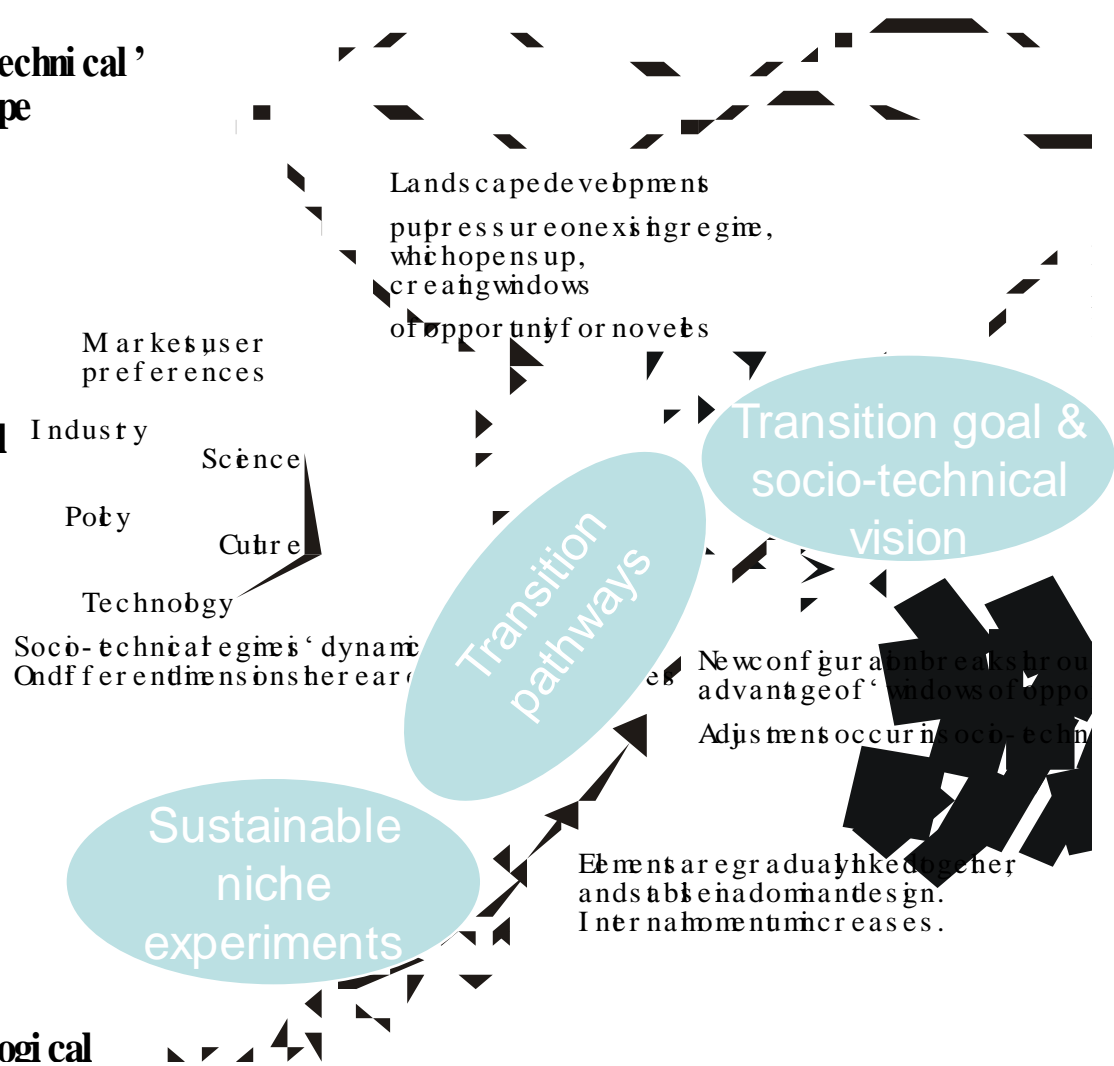
Transition management:

deliberately 'modulate' multi-level dynamics through social learning and institutional reforms

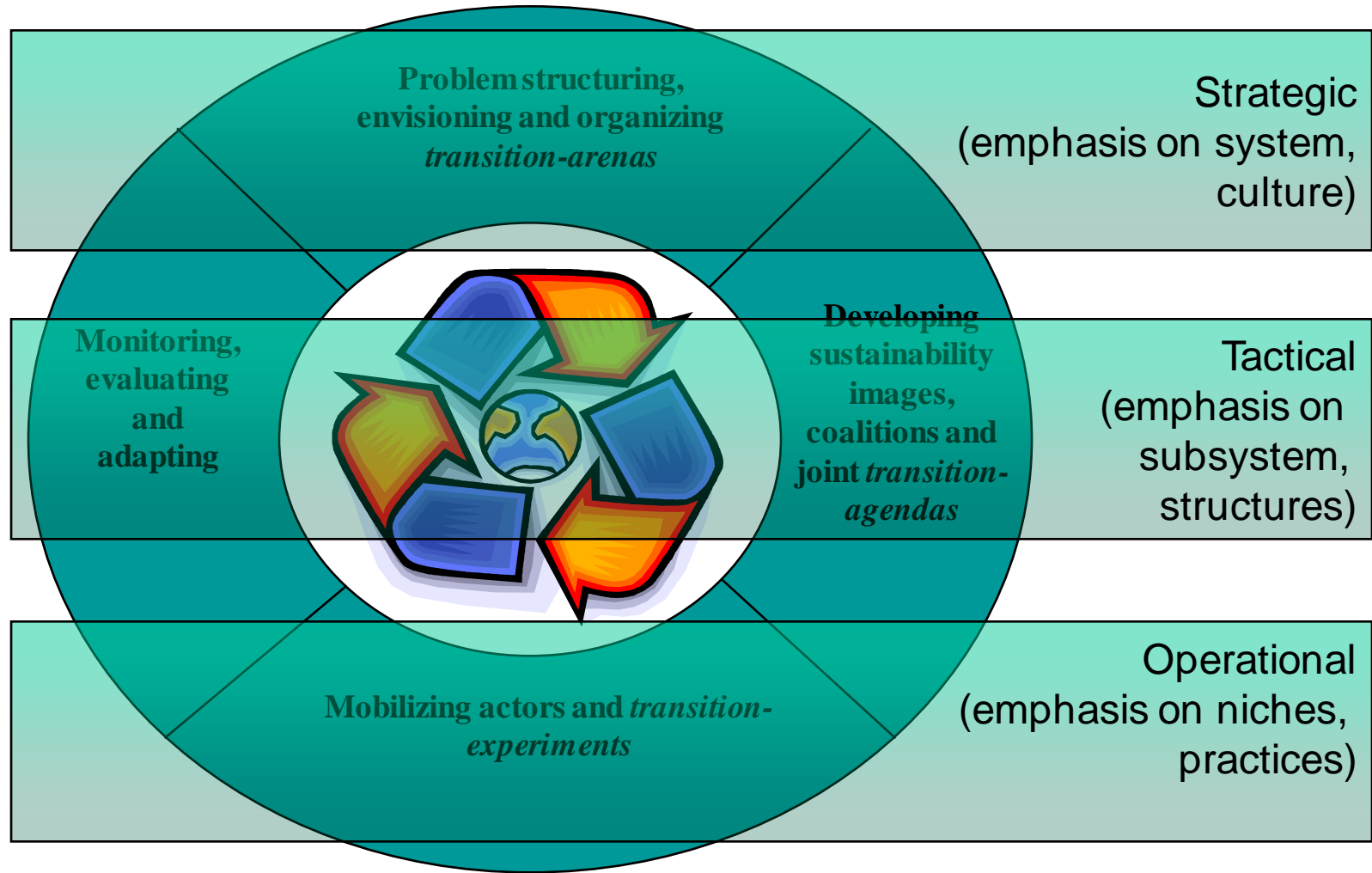
Socio-technical landscape

Socio-technical regime

Technological



Transition management



Source: Loorbach / DRIFT

Critical issues



- Who does the governing?
- Whose 'system' counts?
- Whose 'sustainability' gets prioritised?
- Socio-technical momentum and resilience
- Power and agency in socio-technical regimes
- Political geography of transitions

1. Socio-technical regimes and socio-ecological resilience
 - Socio-technical momentum (resilience?) can undermine socio-ecological resilience
 - Need to think carefully about relations between structure and function (distinct?)

2. Ambivalence of systems and their sustainability
 - Need for reflexivity on part of those defining systems and setting priorities
 - Geography and jurisdictions of influences beyond governance

2. The ongoing, reflexive politics of transition/resilience
 - Politics in and beyond the ideal governance arena (informal reflexive governance)
 - Providing heuristics and tools to help people with what they are already doing (cf. ideal governance arenas)

Summing up



Assumptions and objectives:

- sustainability transitions: structural change of socio-technical systems (socio-ecological poorly conceptualised)

Unit of analysis (the 'system'):

- niches, regimes and landscapes; institutions, technologies, networks (boundaries are ambiguous / different framings)

Mechanisms and pattern of change:

- complex, evolutionary - regime pressure, niche variation (historic transitions subject to many contingencies – contexts)

Methodology, 'typical' empirical studies:

- qualitative narratives of socio-technical regime transformations

Summing up



Practical implications and recommendations:

- transition management – goal-oriented, reflexive institutionalisation of niche-regime processes of transformation
(who governs, whose system and sustainable priorities, agency and power, political geography)

Constructive critique of other fields:

- How to relate momentum of socio-technical systems to the resilience of socio-ecological systems (structure and function)?
- Criticisms of transition management valid for socio-ecological governance?
- Governance of both is highly political: where are the power bases and social movements in political dynamics?