

Understanding Social-Ecological Systems: Frontier Research for Sustainable Development Implications for European Research Policy

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Modes of Research for Sustainable Development (SDR)

■ Multi- or interdisciplinary research:

deals with scientific questions and integration at the interface of different disciplines

■ Transdisciplinary research:

deals with integration at the interface of these scientific questions with societal problems

■ Frontier research for sustainable development means transdisciplinary research!

Social-Ecological Systems

- **Anthropocene: nature and society inseparably coupled**
Complex *social-ecological* systems become object of SDR
- **Social-ecological system: *model* of real world phenomena**
 - defines types of system elements: natural, social, hybrid
 - describes patterns of relation between system elements
- **Epistemic consequence for SDR:**
Ignorance, uncertainty and contested knowledge become key variables in the process of problem solving

Structure of Sustainability Problems

■ Societal context

- Different social claims, subjectivity of problem perception
- Chances and risks of technological innovations

■ Scientific context

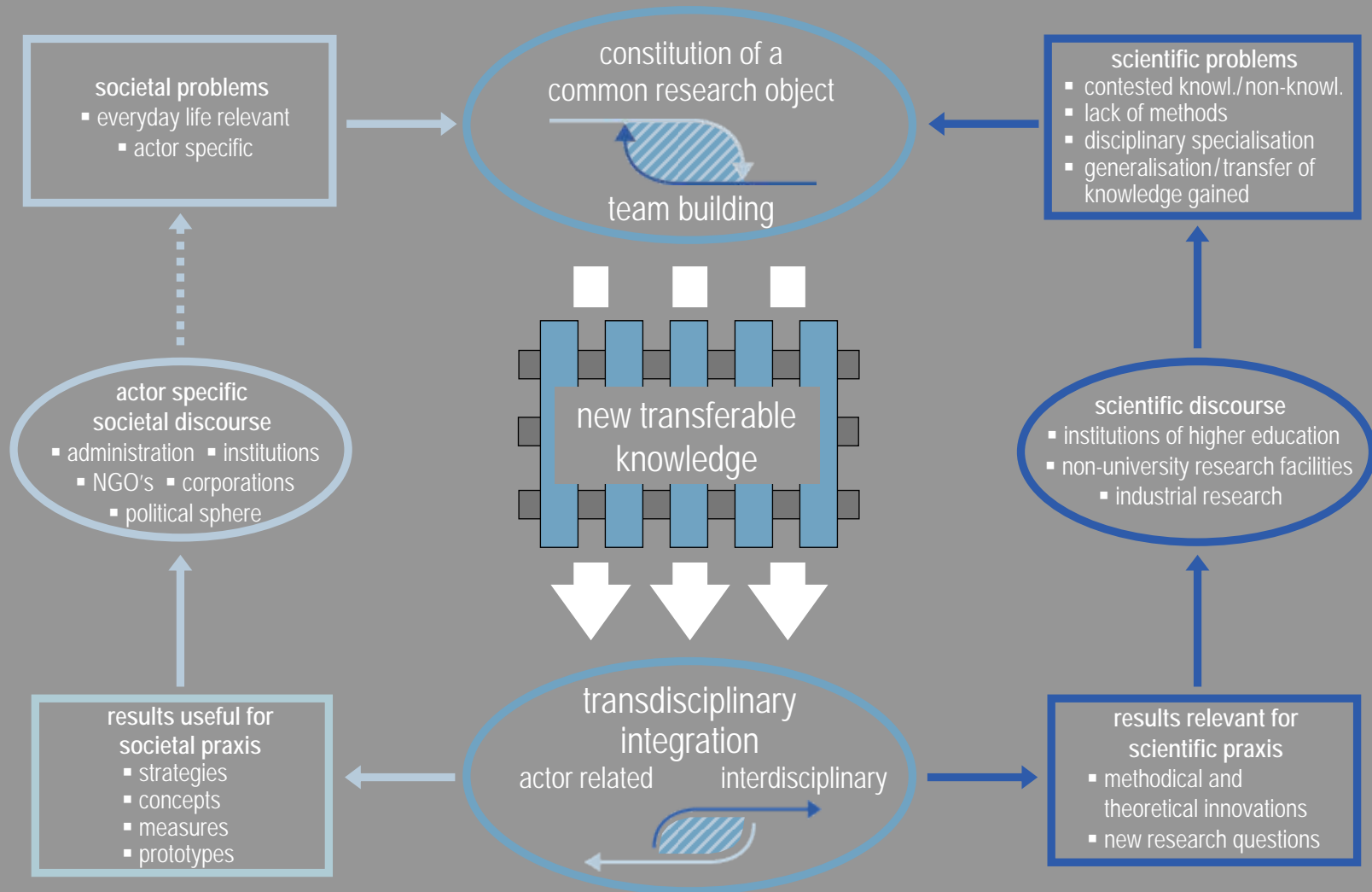
- Uncertainty of (available) knowledge
- Goal conflict: truth vs. utility

■ Types of knowledge:

- System knowledge: understanding the issue
- Orientation knowledge: determining corridors for decision making
- Transformation knowledge: ways and means of realising decisions



Transdisciplinary Research Process



Source: Jahn (2008) in Bergmann/Schramm (eds.): 31 (modified)

Advancing Transdisciplinary Research: Obstacles and Requirements



- **Added value of transdisciplinary research not recognised**
⇒ potential for scientific innovations not fully realised
- **Joint – integrative! – calls not sufficiently promoted**
⇒ transdisciplinary research treated as horizontal activity
- **Evaluation of proposals based on disciplinary excellence**
⇒ transdisciplinary research systematically disadvantaged

Policy Recommendations

- **Appoint person in charge for SDR in each directorate**
- **Allocate defined share of a directorate's budget for calls with explicit transdisciplinary profile**
- **Promote dialogue on transdisciplinary research among scholars and practitioners**
- **Establish commonly accepted quality criteria for transdisciplinary research**
- **Install (institutional) advocate for transdisciplinary research within EU research administration**



Thank you very much for your attention!

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