Teaching Transdisciplinarity:
The Case of ICTs and Society

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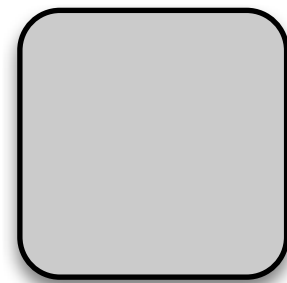
1 Reconnecting Engineering with Systems and Cybernetics
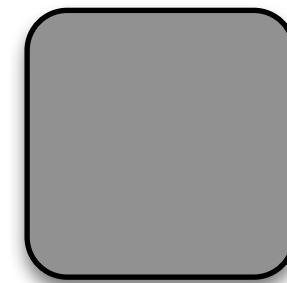
- Overspecialisation (strong disjunctivism)

- Interdisciplinarity (weak disjunctivism)

- Unificationism (reductionism and projectivism)

- Unity through Diversity (systemic integrativism)

1.1 Overspecialisation

Disjunctivism, strong:
"ICTs and Society"
as additive function

engineering sciences
(Computer Science)

social and human sciences
(Communication Studies,
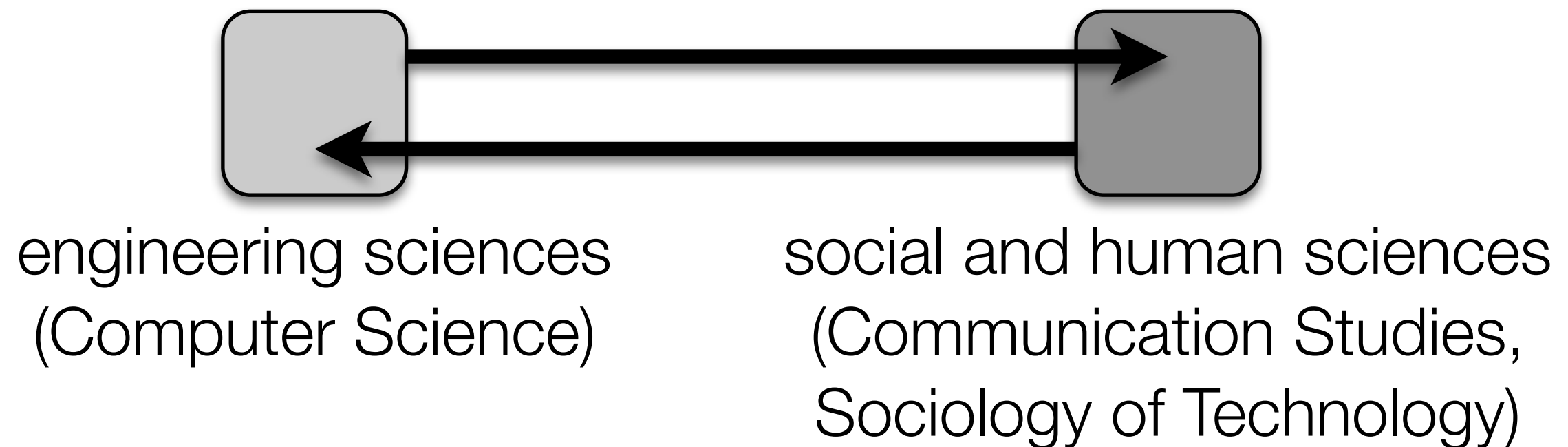Sociology of Technology)

1.2 Interdisciplinarity

Disjunctivism, weak (with interaction):
"ICTs and Society"
as ephemeral relationship

engineering sciences
(Computer Science)

social and human sciences
(Communication Studies,
Sociology of Technology)

1.3 Unificationism

Reductionism, Projectivism:
"ICTs and Society"
as imperialistic subsumption
under either discipline

engineering sciences
(Computer Science)

social and human sciences
(Communication Studies,
Sociology of Technology)

1.4 Unity Through Diversity

Integrativism:
"ICTs and Society"
as transdiscipline

general

Systemics and Cybernetics

meta-level

specific

engineering sciences
(Computer Science)

social and human sciences
(Communication Studies,
Sociology of Technology)
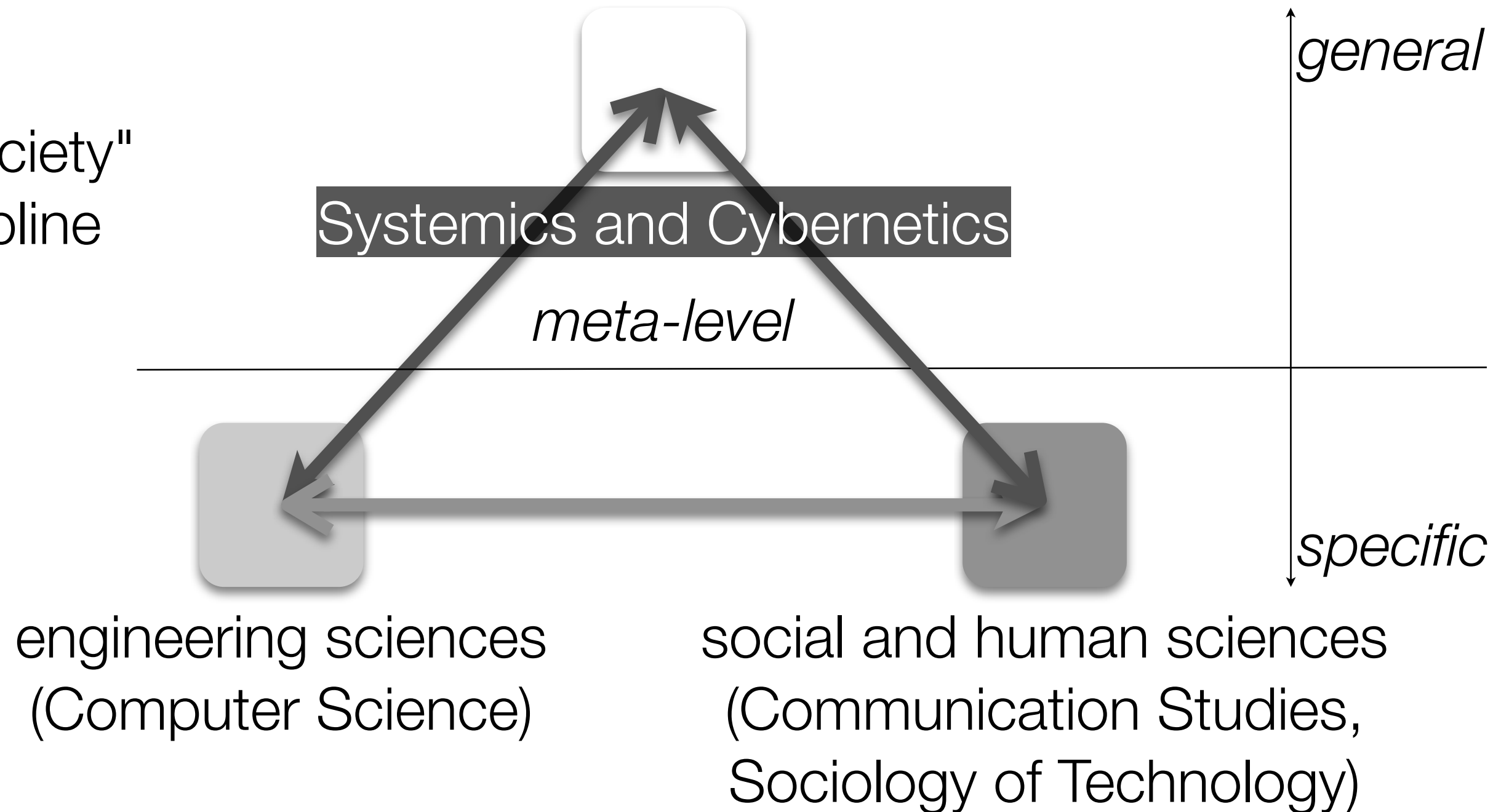
2 Implications for ICTs and Society

	scientific research and technological development	ICTs and Society
aims	purpose, task, social function: to improve the human condition	use-inspired basic research for participatory (social and technological) systems design
scope	domain, realm, object of study and design (shaping technology)	conditions that influence the transition to a more effective (social and technological) system
tools	methods	a system of methodologies crossing disciplines as required

2.1 Use-inspired basic research for participatory systems design
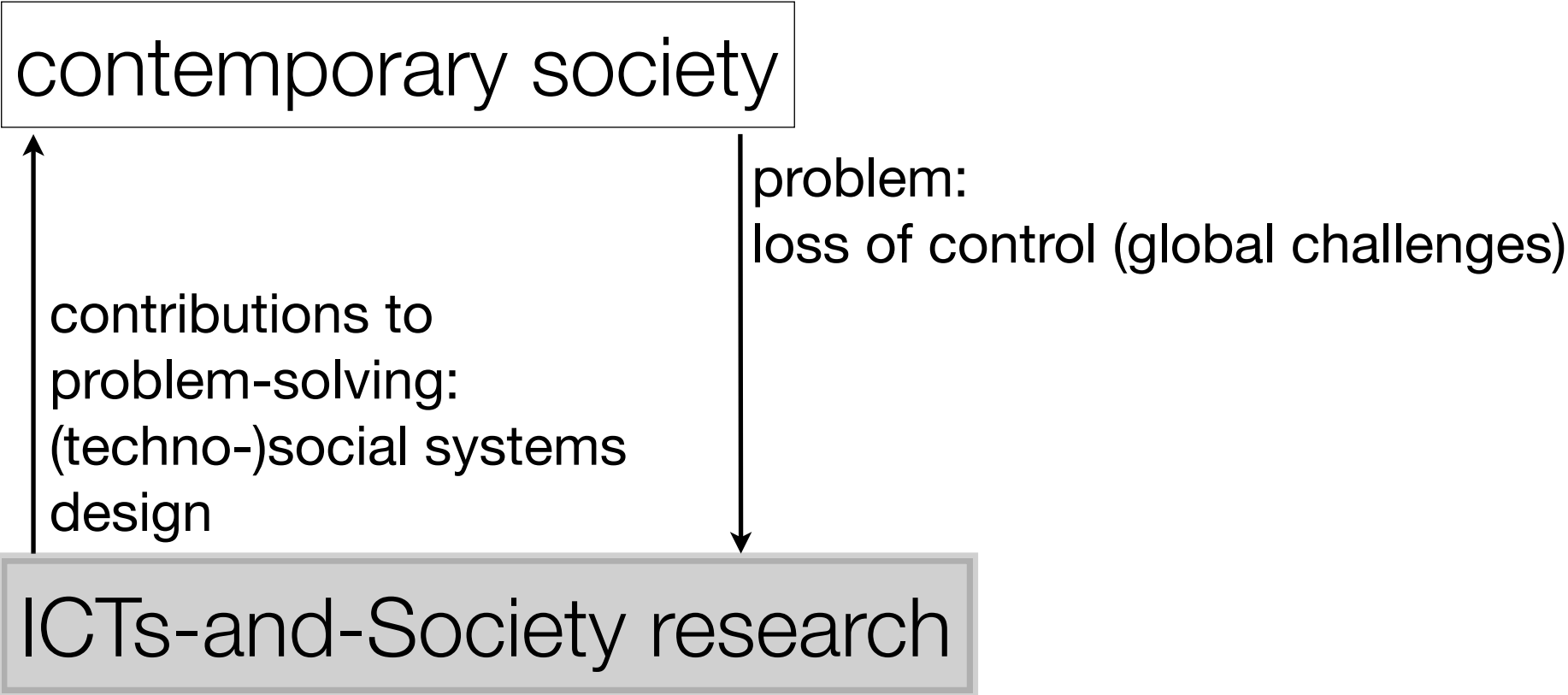
contemporary society

problem:
loss of control (global challenges)

contributions to
problem-solving:
(techno-)social systems
design

ICTs-and-Society research

2.1 Use-inspired basic research for participatory systems design

Global Sustainable Information Society

problem:
regaining/maintaining
of steering capability

contributions to
problem-solving:
(techno-)social systems
design

ICTs-and-Society research

Praxis

social cybernetics

Theory
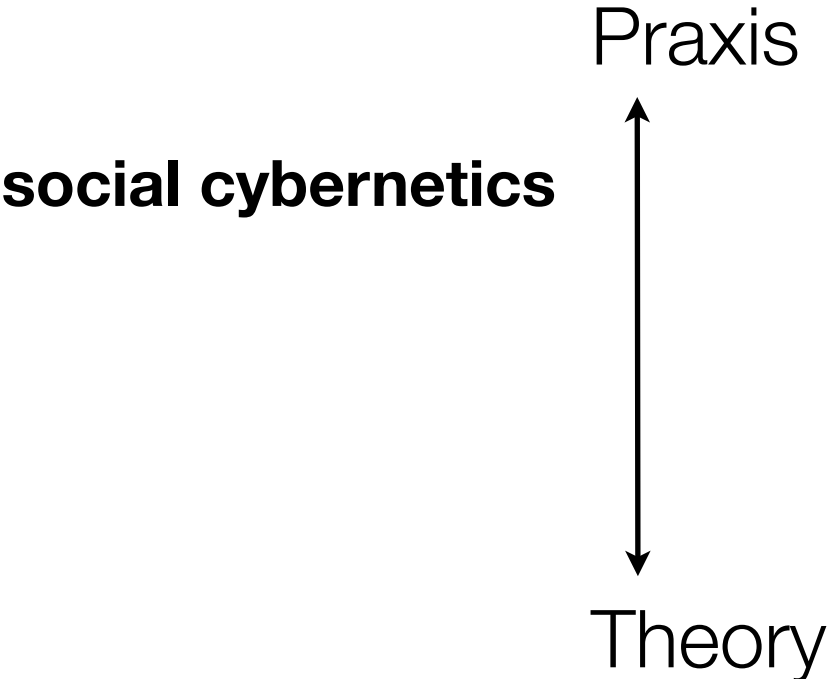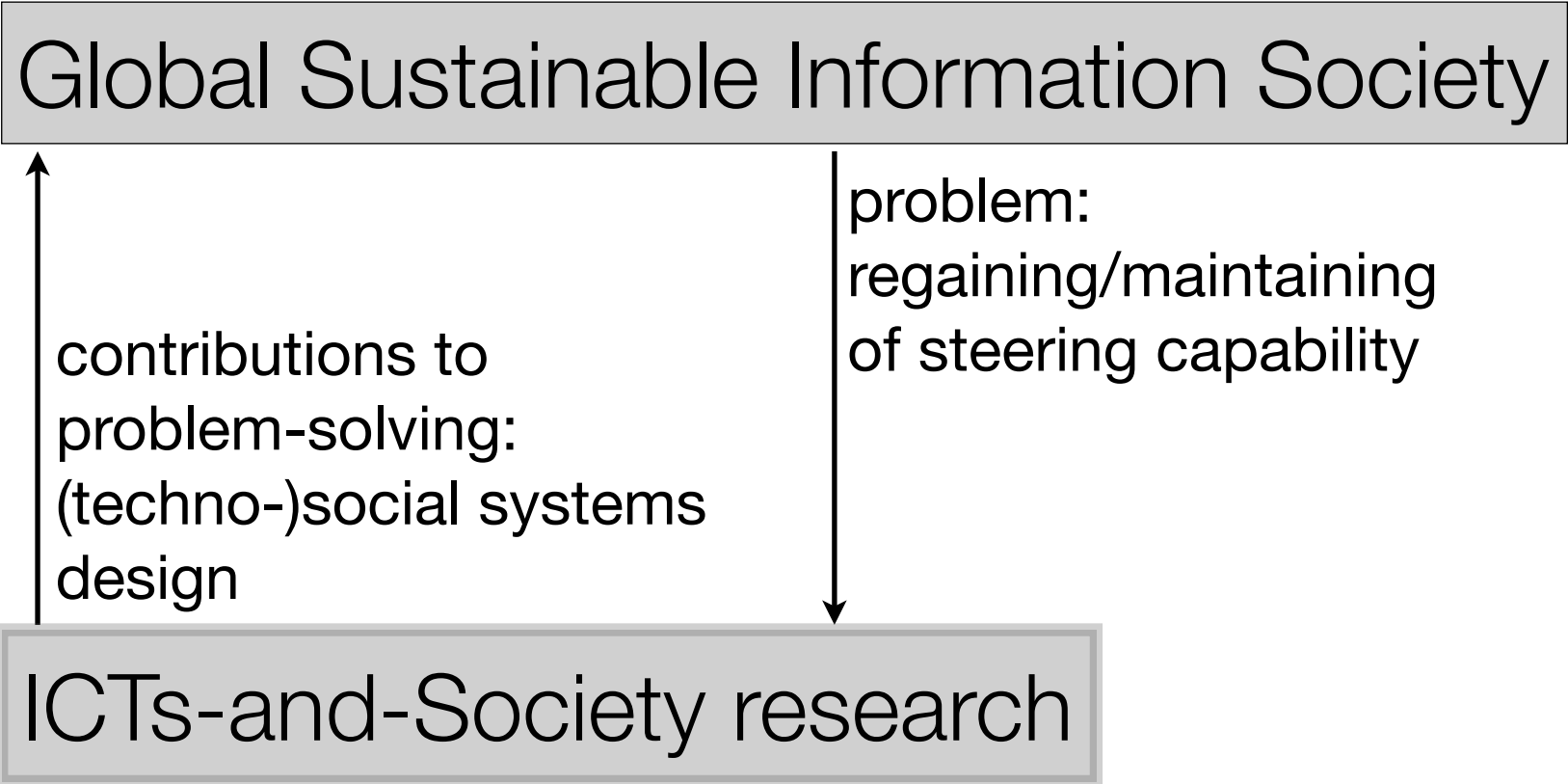
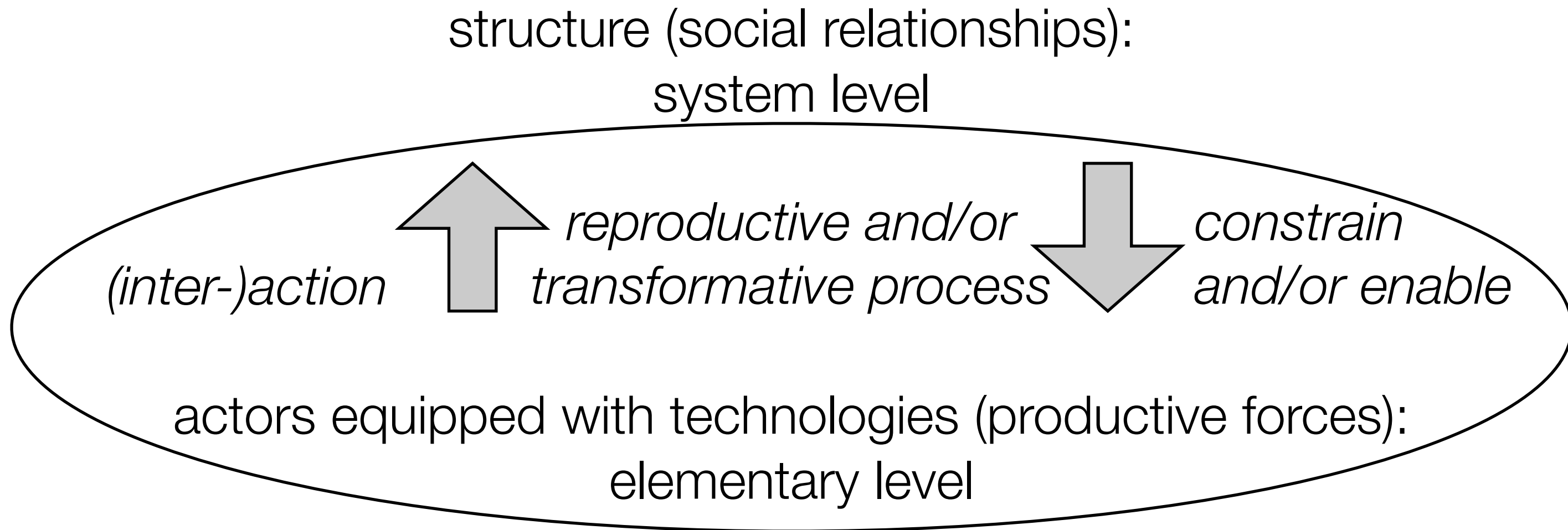# 2.1 Use-inspired basic research for participatory systems design

Global Sustainable Information Society =def. a society that is

(1) capacitated – by means of ICTs – to make use of knowledge (hence "information" society) such that it is

(2) capable to act upon the dangers of anthropogenic breakdown (hence "sustainable" society)

(3) existent on a planetary scale (hence "global" society).

2.2 Conditions that influence the transition to a more effective system

structure (social relationships):
system level

reproductive and/or transformative process *constrain and/or enable*

(inter-)action

actors equipped with technologies (productive forces):
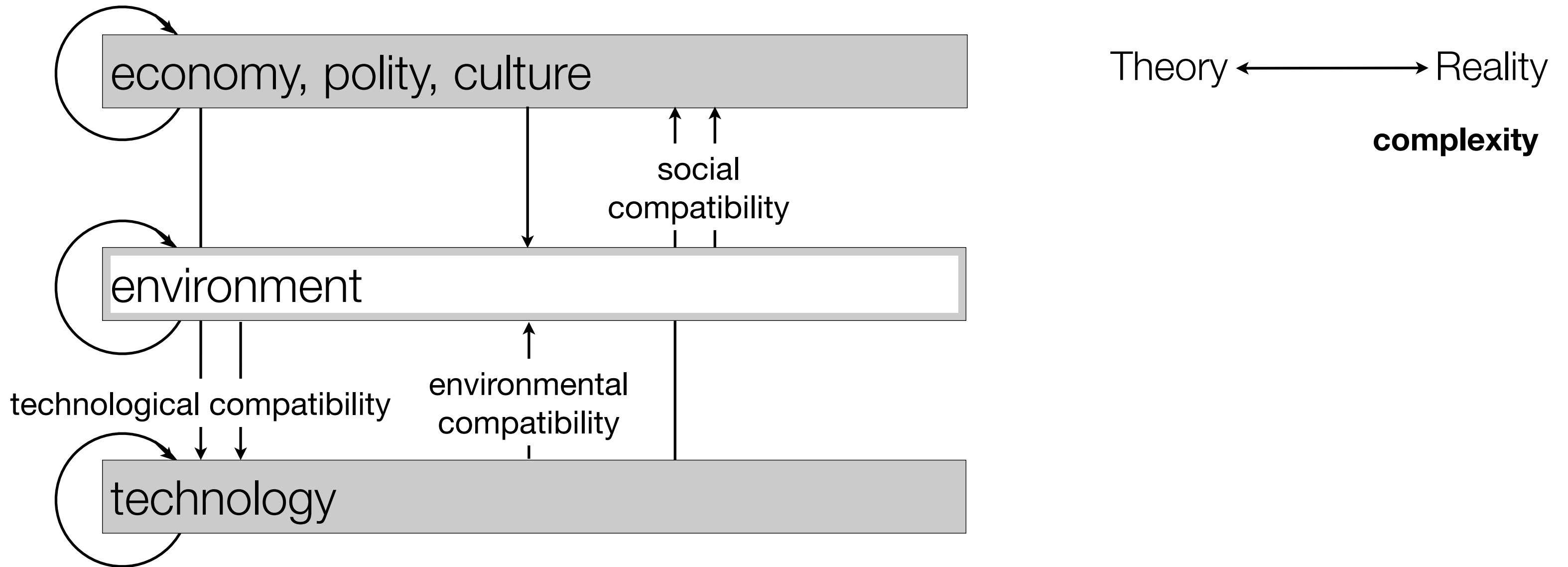elementary level

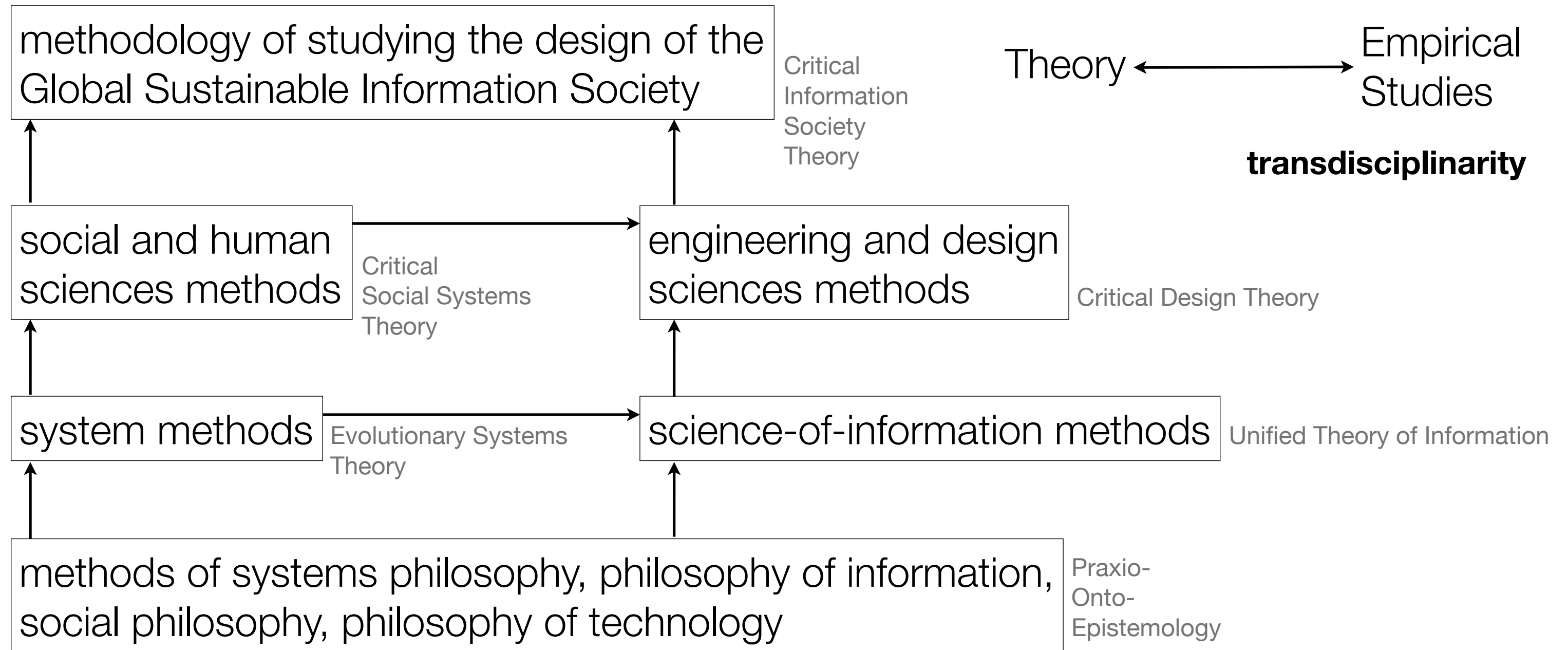## 2.2 Conditions that influence the transition to a more effective system

In this early 21st century we are at the crossroads of the development of the network society. We are witnessing an increasing contradiction between current social relationships of production and the potential expansion of formidable productive forces. This may be the only lasting contribution from the classical Marxist theory. The human potential embedded in new communication and genetic technologies, in networking, in the new forms of social organization and cultural invention, is truly extraordinary. Yet, existing social systems stall the dynamics of creativity […]

– Manuel Castells, The Network Society: From Knowledge to Policy, 2006 –

2.3 A system of methodologies crossing disciplines as required

methodology of studying the design of the Global Sustainable Information Society — Critical Information Society Theory

social and human sciences methods — Critical Social Systems Theory

engineering and design sciences methods — Critical Design Theory

system methods — Evolutionary Systems Theory

science-of-information methods — Unified Theory of Information

methods of systems philosophy, philosophy of information, social philosophy, philosophy of technology — Praxio-Onto-Epistemology

Theory ⟷ Empirical Studies

transdisciplinarity

3 Teaching "Requisite Holism"

Facilitating the build-up of capabilities to make generalisations that fit different specialties in order to provide with a common basis for understanding and taking responsibility

Thank you!