

Innovation, Institutions and Path Dependency

The management of variation in innovation systems

Organized by

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Thematic Focus of the workshop

Recent research on system innovation and transition management has focused on socio-technical transformation processes, which might lead to more sustainable technologies, products or even entire sectors. One of the key problems in transition management that needs further elaboration is how to identify necessary and sufficient conditions for certain socio-technical trajectories to develop. The workshop will address this issue by setting the concept of “technological systems of innovation” at centre stage. Systems of innovation have received much attention in innovation research in recent years as they focus on the role of (formal and informal) institutional structures for successful innovation processes. Innovation systems are considered an appropriate unit of analysis because they are able to provide certain “system functions” that transcend the control of individual actors. Such functions encompass the generation and diffusion of knowledge, the orientation of research and development towards shared goals, the formation of new markets or the experimentation with new socio-technical constellations. Innovation systems are therefore potentially relevant “carriers” or “agents” of systemic innovation processes. In the workshop we want to analyze in more detail how the innovation systems approach and the transition research agenda might be brought into fruitful interaction.

A particular focus will be set on the management of variation in transition processes. Based on the systems of innovation literature, we may reformulate this problem as one of finding an institutional structure that is able to balance between two contradictory tendencies: On the one hand, systems of innovation have to create enough momentum (e.g. through the alignment of expectations and strategies of different actors, by setting standards that favor specific socio-technical configuration or by developing shared visions) for radical alternatives to develop and for necessary learning processes to happen. By this, inevitably, path dependencies are created and certain alternatives are locked-out. However, given that substantial uncertainties reside in long term transformations, a minimal level of variation is needed to keep the system flexible enough if adaptation to new context conditions is necessary. Specific combinations of (formal and/or informal) institutional structures may be more or less apt to deal with either side of this balance.

The workshop aims at bringing together papers that analyze the role of institutional structures for the management of variation in more detail. Furthermore, theoretical and methodological contributions shall be assembled that facilitate empirical identification of innovation systems, assess performance characteristics of innovation systems, elaborate the contribution of foresight and participatory planning to identify innovation friendly institutional structures and that allow to specify coherent socio-technical trajectories. By this we attempt to ultimately contribute to a more thorough understanding of success conditions for Transition Management from the point of view of innovation studies.

More specifically, the workshop will focus on the following issues:

Structure and dynamics of innovation systems

- How to identify/delimit systems of innovation?
- How can functions of innovation systems be assessed?
- How can innovation systems dynamics be analyzed with concepts of complexity theory? (cf. contributions of the first workshop in the series)
- Relationship between TIS, NIS/RIS and SSIP

Institutional structures and innovation system functions

- How can we assess the contribution of particular institutions to innovation system performance?
- What can we say about consequences of different degrees of formalization of institutional structures for improving innovation systems performance? What role may be attributed to intermediaries that take care of specific functions?
- Do we have to distinguish different levels of institutional structures like those for innovation management (micro-level), innovation systems functions (meso-level) and transition management (macro-level institutions)? And how should they be coupled?

Trade-off between diversity and closure and the dynamics of innovation systems

- How do different institutional structures create and maintain diversity and variation? When or how do they guide innovation development in a way that alternatives are locked-out?
- How do institutions and innovation systems co-evolve? Can we use the institutional setting of an innovation system as an indicator for its maturity?

Towards a constructive use of the innovation system concept

- How can we identify missing institutions in a given innovation system? Are there specific resources, or system functions respectively, for which institutions play a crucial role?
- How may the innovation system approach be coupled with foresight and participatory planning? Are innovation systems objects or subjects of sustainable socio-technical transformations?
- What kinds of governance structures are appropriate for dealing with innovation systems dynamics? What implications can we draw for Transition Management? (cf. to be elaborated in more detail in the third workshop in the series)

Workshop series context

“Transitions” is a concept by which governments, business, science and civil society appreciate that sustainability demands radical systems-level change. Ideas from various scientific streams are being appropriated and adapted in an attempt to help us understand system innovation and transition processes on the macro level of society: of special importance are complex systems science, innovation studies and governance analysis. In this rapidly-evolving context several research groups from different countries have taken the initiative of organizing a series of international workshops on ‘system innovations for sustainable development’. The objective of this series of workshops is to further explore the content of this new field of science and to make a significant contribution to the growing dialogue around transitions and system innovations: to analyze overarching concepts, to discuss theoretical building blocks, to study the empirical material that is available, to draw lessons from transition research to date, to debate how a system innovation perspective is reframing the sustainability agenda and to identify key issues for future research.

The series will achieve this by organizing discussions around three key, overarching themes identified in the debate to date. These are:

- Workshop 1 *“Transitions to sustainable development: complexity, co-evolution and governance”* autumn 2006 in Rotterdam, organised by Jan Rotmans (KSI/DRIFT) and Matthias Weber (ARC-sys)
- Workshop 2 *“Innovation and path dependency”* spring 2007 in Zurich, organised by Bernhard Truffer (CIRUS) and Harald Rohracher (IFZ)
- Workshop 3 *“Policy-making for long-term fundamental change”* autumn 2007 in Berlin, organised by Jan-Peter Voß (Öko-Institut), Adrian Smith (SPRU) and John Grin (Univ. Amsterdam)

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Venue

The workshop will be held at the premises of Cirus at Eawag in Dübendorf near Zürich. Participants will be located in a hotel at walking distance from the workshop venue. A shuttle will be organized during the workshop.

To arrive at Dübendorf you may either use a direct bus from Zürich airport to Eawag or there are several S-Bahn lines that leave Zürich main station and lead to Eawag. The building in which the workshop will take place is newly built according to zero-energy standard (see <http://www.forumchriesbach.eawag.ch/>). Travel directions may be found under http://www.eawag.ch/about_e/ways_to_eawag/e_plan_dueb.html)

Duration and structure of the workshop

The workshop will formally start Monday, April 16, 2007 at 10 a.m. and end Tuesday, April 17 at about 4 p.m. Sunday, April 15 there will be a reception dinner for the participants arriving Sunday after-noon.

The workshop will consist of paper presentations, prepared comments and open discussion. Active participation is expected. Participation is by invitation, as a rule. The number of participants is limited to 30. In the aftermath of the workshop, we intend to prepare a special issue publication on the topic of the conference.

The workshop will be followed by a one day conference on Wednesday, April 18 where we celebrate the inauguration of Cirus as a research department at Eawag. A series of internal and external presentations will be followed by an inauguration party.

Further information

Regarding organizational details please refer to

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