

# **Research Workshop „Analysing Archetypes in Sustainability Research“**

**2<sup>nd</sup> – 4<sup>th</sup> May 2017, University of Bern, Switzerland**

## **Workshop Report**



### **Content**

1. Programme .....	2
2. Overall Archetype Process .....	4
3. List of Participants.....	4
4. Key Insights from the Plenary Discussions and Flashtalks .....	6
4.1. Towards a common understanding of the multiple meanings of archetype analysis in sustainability research .....	6
4.2. Methodological debates.....	8
4.3. Transdisciplinary research designs and the transfer of knowledge through archetypes.....	13
5. Thematic Groups Outcomes .....	14
6. Resources and Knowledge Management: Google Folder .....	17
7. Follow-up and Next Steps .....	18
Attachment .....	18

This report was written by Christoph Oberlack, Andrea Winiger, Patrick Kupferschmied, Diana Sietz and Klaus Eisenack in May 2017, with inputs from the working group leaders.

# 1. Programme

**Venue and date:** University of Bern, Switzerland, 2<sup>nd</sup> – 4<sup>th</sup> May 2017

Tuesday, 2 <sup>nd</sup> May 2017		Room
13.30	Arrival and registration, welcome coffee & tea	A -119
14.00	Opening session 1 <ul style="list-style-type: none"> <li>Welcome, workshop objectives &amp; the overall archetype process (Christoph Oberlack)</li> <li>Presentation of participants</li> </ul>	A -119
15.30	Flashtalk Klaus Eisenack: Archetypes and related approaches in institutional analysis	A -119
15.40	Flashtalk Nick Magliocca: Synthesis methods in land systems science	A -119
15.50	General discussion on the flashtalks, workshop objectives, scope and approach (moderator Christoph Oberlack)	A -119
16.15	Coffee break	A -119
16.45	Flashtalk Diana Sietz: Archetype analysis in global change research	A -119
16.55	Session 2: Towards a common understanding of the multiple meanings, opportunities and challenges of archetype analysis in SES and sustainability research (moderator: Klaus Eisenack) <ul style="list-style-type: none"> <li>What are your experiences regarding key prospects and challenges of archetype analysis, synthesis methods and/or comparative methods?</li> <li>What varieties of archetype analysis are there?</li> <li>What is archetype analysis NOT?</li> </ul>	A -119
18.15	Thematic groups setup: setting up the themes, moderators, members (moderator: Christoph Oberlack)	A -119
18.45	End of Day 1	
19.15	Workshop Dinner in the Restaurant Zähringer Hof (all participants invited)	

Wednesday, 3 <sup>rd</sup> May 2017		Rooms
8.30	Welcome back, morning coffee & tea	A -119
8.45	Plenary: Results of the preparatory survey, and agenda setting for the day (Christoph Oberlack)	A -119
9.00	Session 3: Thematic groups	Workshop rooms
10.45	Coffee break	A -119
11.15	Session 4: Thematic groups (plenary)	Workshop rooms
12.30	Lunch in the UniESS Bistro. The Bistro is located “behind the bar” in the ground floor of the UniS building.	UniESS Bistro

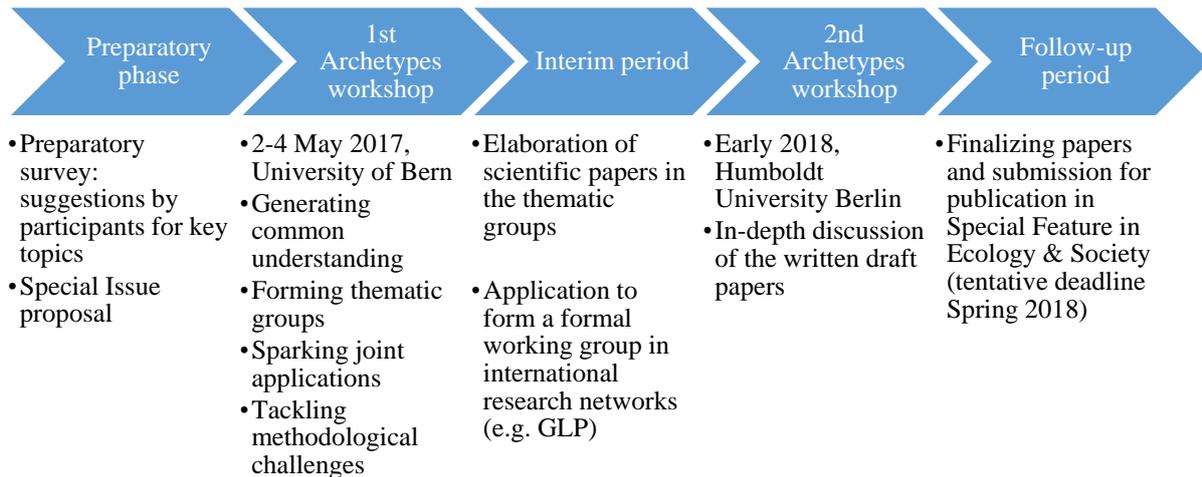
<b>Wednesday, 3<sup>rd</sup> May 2017 (continued)</b>		<b>Rooms</b>
<b>14.00</b>	Flashtalk Urs Wiesmann: Learning from the syndromes to global change approach	A -119
<b>14.10</b>	Flashtalk Tomas Vaclavik: Transferability of place-based insights in large research projects	A -119
<b>14.20</b>	Discussion on the flashtalks (moderator: Klaus Eisenack)	A -119
<b>14.30</b>	Agenda setting for the afternoon (moderator: Klaus Eisenack)	A -119
<b>14.35</b>	Session 5: Thematic groups	Workshop rooms
<b>16.30</b>	Coffee break	A -119
<b>17.00</b>	Session 6: Plenary with participation by remote participants through skype (mod.: Diana Sietz) <ul style="list-style-type: none"> <li>• Guiding question: what are the next steps in archetype research?</li> <li>• Input statements of the thematic group moderators.</li> <li>• General discussion among the onsite and the remote participants.</li> <li>• Implications for day 3.</li> </ul>	A -119
<b>19.00</b>	End of Day 2	

<b>Thursday, 4<sup>th</sup> May 2017</b>		<b>Rooms</b>
<b>8.30</b>	Welcome back, morning coffee & tea	A 201
<b>8.45</b>	Plenary: Recap of day 2 and agenda setting for day 3 (moderator: Christoph Oberlack)	A 201
<b>9.00</b>	Session 7: Thematic Groups <ul style="list-style-type: none"> <li>• Incorporating the feedbacks received from onsite and remote participants.</li> <li>• Finalizing the group work and the draft paper outlines.</li> <li>• Agreeing on the follow-up process.</li> </ul>	Workshop rooms
<b>10.45</b>	Coffee Break	A 201
<b>11.00</b>	Session 8: Plenary (moderator: Diana Sietz) <ul style="list-style-type: none"> <li>• Presentation and discussion of the thematic group outcomes</li> </ul>	A 201
<b>12.30</b>	Closing plenary (moderator: Christoph Oberlack) <ul style="list-style-type: none"> <li>▪ Agreeing on next steps (e.g. papers/ projects of the thematic groups, Special Issue, second workshop at HU Berlin, potential GLP working group). Closure of the workshop.</li> </ul>	A 201
<b>13.00</b>	End of Workshop	

### Financial support gratefully acknowledged:

## 2. Overall Archetype Process

This first Archetype Workshop is embedded in a longer-term research process aiming at pushing methodological frontiers and sparking new applications of archetype analysis in sustainability research:



## 3. List of Participants

Name		Institution	Position
de Bremont	Ariane	University of Maryland, USA, and University of Bern, Switzerland	Senior Scientist & Global Land Programme Executive Officer
Dell'Angelo	Jampel	Vrije Universiteit Amsterdam, The Netherlands.	Assistant Professor
Eisenack	Klaus	Humboldt University Berlin, Germany	Professor
Ellis	Erle	University of Maryland, USA	Professor
*Epstein	Graham	University of Waterloo, Canada	Postdoctoral Researcher
Frey	Ulrich	German Aerospace Center (DLR), Stuttgart, Germany	Research Associate
*Galopin	Gilberto	Independent Researcher, Buenos Aires, Argentina	Senior Researcher
Giger	Markus	University of Bern, Switzerland	Head of Cluster and Senior Scientist
Heinimann	Andreas	University of Bern, Switzerland	Senior Scientist, Lecturer, Regional Coordinator CDE



Hett	Cornelia	University of Bern, Switzerland	Senior Scientist
Kimmich	Christian	Masaryk University Brno, Czech Republic	Senior Researcher
Magliocca	Nick	National Socio-Environmental Synthesis Center (SESYNC), Maryland, USA	Assistant Professor
*Manuel-Navarrete	David	Arizona State University, USA	Assistant Professor
Mathur	Vikrom	Tandem Research, India; Observer Research Foundation, India; Stockholm Environment Institute	Director (Tandem Research), Associate Fellow (SEI)
Messerli	Peter	University of Bern, Switzerland	Professor & Director CDE, Co-chair GSDR
*Meyfroidt	Patrick	F.R.S. – FNRS & Université catholique de Louvain	Research Associate & Professor (ERC Starting Grant)
*Moran	Emilio	Michigan State University, USA	Professor
Oberlack	Christoph	University of Bern, Switzerland	Postdoctoral Researcher
Rist	Stephan	University of Bern, Switzerland	Professor & Head of Cluster
Roggero	Matteo	Humboldt University Berlin, Germany	Postdoctoral Researcher
Schneider	Flurina	University of Bern, Switzerland	Senior Scientist & Head of Cluster
Sietz	Diana	Wageningen University & Research, The Netherlands	Senior Scientist
*Sterzel	Till	Adelphi Research, Germany	Researcher
Tan	Rong	Zhejiang University, China	Professor
Václavík	Tomáš	Umweltforschungszentrum Leipzig (D), Palacky University (CZ)	Scientist & Assistant Professor
Villamayor-Tomás	Sergio	Autonomous University of Barcelona, Spain	Postdoctoral Researcher (Marie Curie Fellow)
Wiesmann	Urs	University of Bern, Switzerland	Professor
Kupferschmied	Patrick	University of Bern, Switzerland	Research Assistant
Winiger	Andrea	University of Bern, Switzerland	Research Assistant

\* Remote participant (through skype, thematic groups, second workshop at HU Berlin)

## 4. Key Insights from the Plenary Discussions and Flashtalks

This section summarizes main insights from the plenary sessions and flashtalks. All slides of the flashtalks as well as photos of the flipcharts from group work are available in the workshop's google folder, here:

<https://drive.google.com/drive/folders/0B1xFIAxWhJSmWl9QOG1QazdQTTA>

Flashtalks:

- Klaus Eisenack: “Archetypes and related approaches in institutional analysis”.
- Nick Magliocca: “Synthesis methods in land system science”.
- Diana Sietz: “Archetype analysis in global change research”.
- Urs Wiesmann: “Learning from the (mitigating) syndromes to global change approach”.
- Tomáš Václavík: “Transferability of place-based insights in large research projects”.

### 4.1. Towards a common understanding of the multiple meanings of archetype analysis in sustainability research

The current scientific literature lacks agreement on the precise meaning(s) of archetypes in sustainability research. The workshop participants increased precision by identifying **multiple** meanings of archetypes and **clarifying the gradients** along which multiple meanings vary.

**Gradients along which multiple meanings of the notion of archetypes vary:**

- Purposes of archetype analysis: descriptive – normative (transferring transformation knowledge).
- Treatment of causality: descriptive (no causality) – thick descriptive (narratives) – causal factors configurations – causal mechanisms/processes.
- Treatment of space: Spatially explicit – spatially implicit – non-spatial patterns.
- Classification and delineation of archetypes: One case can be characterised by multiple, concurrent archetypal processes and outcomes at the same time, i.e. membership in multiple archetypes (soft/fuzzy classification) – delineating archetypes in such a way that each case is a member of exactly one archetype (hard/crisp classification).
- Necessity vs. likeliness of attributes in an archetype: can cases partially reflect an archetypal pattern of attributes? Are all attributes of an archetypal pattern necessary to diagnose the presence of an archetype in a case?

**Statements from the discussion: Need for common definition of archetypes in sustainability research?**

- It is important to have a **shared understanding** of key principles and features of archetype analysis and counter-examples.
- It might make more sense to define **what archetype analysis is** rather than what it is not (because the counter-examples are numerous).
- Due to the multiple meanings of archetypes, it could make sense to see archetypes as a **boundary object** between research and application communities and epistemologies, enabling

*inter- and transdisciplinary* dialogue about recurrent patterns across larger numbers of cases of a phenomenon/problem/process.

- It might be easier to define the term “**archetypical**” rather than the term “archetype” (not limiting the number of characteristics of archetypes).
- The term “archetype” has been used in different disciplines, including philosophy and psychology. This workshop series is about archetype analysis **in sustainability research**.

#### **Are (should) the archetypes always be linked to (causal) processes?**

- View 1: Archetypes are linked to **processes**. Most of the analytical frameworks we use contain boxes and arrows, and we need to look at the arrows (processes) and not only at the configuration of the boxes (indicators of system variables). In archetype analysis, we (can) link arrows with boxes. For instance, UNEP’s (2007) archetypes of vulnerability compiled a set of causal mechanisms, for which quantitative indicators were chosen.
- View 2: The archetype approach has been used in the sense of a **descriptive classification of system properties** according to a phenomenon of concern, which does not refer to (causal) processes.
- See: Link for the responses to the question “What are counterexamples to archetype analysis?”: <https://drive.google.com/drive/folders/0B4Uga7TxvhCVRVFibTRNRTIPOGc>



## 4.2. Methodological debates

### 4.2.1. Key insights on methodologies for archetype analysis from sessions 1-3:

(source: [https://docs.google.com/document/d/1HbjhRD49IkX-d3FgGNobNm28\\_TKu81\\_fw60aqcaUr3I/edit](https://docs.google.com/document/d/1HbjhRD49IkX-d3FgGNobNm28_TKu81_fw60aqcaUr3I/edit))

- **Counterfactual analysis** is important to support robustness.
- Start from an **outcome**, e.g. sustainability dimensions, feedbacks in telecoupled systems etc.
- Be explicit about the **normative reference** or **evaluative criteria**; we need to be self-reflective and self-critical about what we are representing in these processes. There are always certain values behind our research, in both studying a “phenomenon/system/process” and studying a “problem”.
- **Theory** helps to explain the underlying links between diagnostic attributes and outcomes.
- **Diagnostic-design-outcome** distinction useful, though not the only distinction, and not very easy to operationalize.
- Discussion on **quality criteria** (in particular specific criteria for archetype analysis), including for teaching (potential criteria may include, but not limited to: verification, explicit range of applicability, communicability, sensitivity to particular methods etc.).
- Carefully select the **resolution/level of abstraction of attributes**.
- Researching archetypes requires specifying their “**domain of applicability**” (ensuring comparability of cases).
- Archetype analysis is neither a theory nor a method. It is a way of thinking and a way of structuring research.
- Archetypes are **mental models** to describe or explain recurrent patterns of a phenomenon. Using archetypes in science-policy-interactions may co-produce/change mental models together with decision-makers.
- The term “**case**” does not necessarily refer to *local* case studies; it can also refer to a unit of analysis at a spatial meso- or macro level such as regional land-use systems or international agreements. Archetypes describe/explain recurrent patterns across those cases.
- Archetype analysis is about finding the **intermediate levels** between
  - Case studies and generalisation (idiographic trap and overgeneralization trap)
  - Abstraction and concreteness (vagueness and richness of details)
  - Complexity and simplicity
- It is important that the methods used in archetype analysis can take into consideration the **richness of case studies**.
- The tension between generalisation and contextualisation in sustainable development does not imply that the archetype approach cannot be used. By contrast, it may be particularly useful to search for recurrent patterns at the intermediate levels mentioned above. An archetype can be a mental model, e.g. of socio-ecological systems, which abstracts from contextual richness. Through (re-)contextualization, archetypes can be enriched and validated for specific cases again.
- We need to complement the **synthesis perspective** of archetype research (e.g. meta-analyses) with the **designing perspective** of archetype research (e.g. research projects or programmes involve medium to large number of cases).

#### 4.2.2. Causality in Archetype Analysis

Workshop participants identified four different treatments of causality in archetype analysis:

- descriptive studies (no causal claims)
- thick descriptions (narratives)
- configurations of (causal) factors
- causal mechanisms/processes; causal clusters, chains

Statements on causality:

- Is it sufficient to speak of processes linked to patterns? → Concern that the focus on the term causality would exclude some research.
- If archetypes are not including analysis of processes or causes, then they are a set of situations that are similar. Seemingly similar situations might have different underlying causes.
- Archetypes are more than a typology of causal effects. Archetypes are causal circuits, clusters, or chains of interactions with different causal effects, including feedback loops
- Keep in mind causality in cross-level interactions. → terminology of “emergence” may provide a way to cope with the more unpredictable nature of cross-level causality, and with cumulative effects of concurrent cross-level processes.
- There is a need to be aware of the temporal reference of data sets (to identify potential causal effects operating/changing over time).

#### 4.2.3. How to identify and delineate archetypes?

- Depends on the **method of data analysis**. For instance, cluster analysis presents patterns based on measures of similarity or difference.
- Depends on the researcher’s answers to the questions whether...
  - one case can experience **multiple, concurrent archetypical processes** and outcomes at the same time, i.e. membership in multiple archetypes, **or** delineating archetypes in such a way that each case is a member of **max. 1 archetype**.
  - can **cases partially reflect** an archetypical pattern of attributes (fewer, more synthesized patterns with larger numbers of attributes), **or** are all attributes of an archetypical pattern **necessary** to diagnose the presence of an archetype in a case (larger number of patterns with fewer attributes)?
  - there is a **minimum frequency of observations**, e.g. is a pattern that is found in 1% of the population an archetype; does “recurrent” pattern mean at least in 2 cases?
- In complex settings, it might help to identify **sub-archetypes**, which are more specific, recurrent manifestations of a more general archetype (e.g. Dryland vulnerability archetype and sub-archetypes of dryland vulnerability).

#### 4.2.4. Validation of archetypes: How can archetypes be validated or falsified?

- Challenge: archetypes do not claim to hold in every case, therefore it is difficult to falsify them.
- Necessary to specify the **domain of applicability** of an archetypical pattern to arrive at a verifiable and falsifiable statement.
- Suggested archetypes can be verified with **empirical case studies** for the specified context/domain of applicability.
- If the hypotheses of an archetype do not hold for a case (despite similar domain of application and context variables), researchers can consider (1) to re-specify the domain of application of this archetypes; (2) to re-specify the context variables for which it holds; (3) to add factors which explain the surprise; or (4) consider it falsified.
- Test **sensitivity** of archetypical patterns to different methods of data analysis. For instance, different methods for cluster analysis may come up with different results and are more or less sensitive to outliers. Archetypes identified may also be sensitive to inclusion/exclusion of variables/indicators which can be statistically tested (e.g. Fraiman Index).
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#### 4.2.5. Is it possible to use the archetype approach to understand what governance strategies or institutional designs are suited to address specific problems in specific social-ecological contexts (i.e. to study institutional fit)?

Example: Local elite captures which triggers negative impacts on livelihood. What governance strategies are suited to address elite capture in which context? How do we do it analytically?

- One possible solution: notion of **design attributes** might be a step forward if we also code design attributes and not only diagnostic attributes.
- Another solution: Analyze **generic processes** which can lead to varying outcomes. Ask what conditions and strategies make the difference that those processes generate different outcomes.

#### 4.2.6. Would a guide or protocol for archetype analysis be a useful tool?

Would it be useful to generate a **guide or protocol how to conduct archetype analyses?**

##### Pro:

- + allows to be more precise what we mean by archetype analysis, including definitions of key terms of archetype analysis.
- + can help sharing best practices how to deal with typical challenges that arise in archetype analysis
- + can help teaching archetype analysis

##### Con:

- Might be perceived as a narrowing down prescription and be not flexible enough to work in different disciplines, with different methods and epistemologies.
- There are many different methods to analyse archetypes. Hence, sceptical about feasibility and usefulness of a protocol that specifies very precise steps for particular methods (e.g. cluster analysis based on existing datasets proceeds very different than a model-centred meta-analysis of case studies using formal concept analysis).
- Furthermore, there are very good and established protocols and standard sources for best practices to use specific methods, e.g. QCA, cluster analysis, meta-analysis etc. No need to reproduce guidance how to conduct, e.g. a QCA, but rather refer to standard writings for such methods.
- Currently, the very definition of archetypes is under discussion and at this state it is too early for a protocol. But it could be very useful to highlight a number of lessons learned from archetype analysis (e.g. what has worked, what did not work). This is a more open setting and leaves more rooms for different type of protocols.

##### Conclusion:

Thus, it might be useful to envision the Special Feature in Ecology & Society as comprising **principles, methodological guidelines and best practices in archetype analysis** (rather than reproducing very precise protocols for specific methods), and to **refer to specific sources for protocols of specific methods** such as QCA, cluster analysis, meta-analysis.

#### 4.2.7. Is archetype analysis suited to address emergence (e.g. emergent properties of concurrent cross-level processes)?

Is an archetype an emergent property from a set of causal relations? Is it a set of cause-effect relationships operating across scales/levels? Is it just a network of causes without emergent quality?

- One looks at emergent properties, if one is not able to describe a certain phenomenon as the sum of a set of sub-processes but as something more.
- How could this be answered in archetype analysis? When we select causal loops and focus on typical combinations, we would be able to see a certain set of typical combinations that we could interpret in terms of emergent properties.
- Can emergent properties be represented by archetype analysis?
  - 1.) There is an emergence dimension in the role of the building blocks, individual attributes, which are standing alone, are not an archetype but make up one together. This is already emergence.
  - 2.) In partial contradiction with 1. The mechanisms as an important element of detecting AT but when you look at emergence you don't see the mechanism anymore,
- It is possible in principle to identify archetypes, which lead to emergence that is to say to a structural change where the system organisation changes suddenly and drastically. In this understanding, an archetype is a set of causal circuits that lead together with some system structure to the breaking out of this structure into a new organisation. Example of capturing emergence in archetypes is "poverty trap".



### 4.3. Transdisciplinary research designs and the transfer of knowledge through archetypes

Transfer of knowledge can be thought of as extrapolating: Generating expectations and hypotheses for a new case (e.g. on expected social-ecological dynamics; on effects of a governance strategy) based on knowledge on archetypical patterns from other cases. This is expected to work for the specific domain of applicability and context variables for which an archetype was found to hold. Extrapolating usually involves a key step of re-contextualizing a general pattern(s) for the new case.

One methodological option to assess similarity of cases, e.g. to see what sustainability solutions might be applicable to similar cases, is to use cluster analysis. This option relies on statistical measures indicating similarities of cases. Whether clustering yields relevant and credible archetypes crucially depends on how well diverse researchers', decision makers' and stakeholders' views and problem framings are reflected in the analysis, among other aspects. If the data/indicators used in the cluster analysis appropriately capture the diverse views and problem framings, including particular perceptions on measures of similarity, the resulting archetypes may provide relevant knowledge for decision-making and policy design.

Integrating a transdisciplinary design with archetype analysis may address this gap. Important activities and steps for a transdisciplinary collaboration may include problem framing, validation of (and potentially capacity building in) methodologies for data collection and analysis, as well as interpretation and re-contextualization of results.

There are key challenges involved in using archetype analysis in a transdisciplinary design. One is a potential trade-off between the larger number of cases needed for an analysis of archetypes and the resource-intensiveness (time, energy, money) and special dynamics of transdisciplinary research. Another potential challenge is that some stakeholders who are involved early on in problem framing may act on "special cases", potentially not benefitting from insights into recurrent patterns.

A transdisciplinary key question is whether the indicators used in a (disciplinary) archetype analysis are system variables or normative variables.

Insights into similarities of contexts (cases belonging to one archetype), might be used early on for designing transdisciplinary knowledge transfer, e.g. bringing members of different municipalities which belong to the same archetype together based on the expectation that their similar context is advantages for knowledge transfer for them. This would also imply to follow up if knowledge transfer took place and was beneficial.

## 5. Thematic Groups Outcomes

This section summarizes main outcomes of the thematic group workshops held on day 2 and day 3. One group on meanings and principles, three groups on methodological questions and four application groups have convened.

### Meanings group

#### **Group 0: Meanings and principles of the archetype approach in sustainability research**

The meanings group will proceed to write a paper for the Special Feature, guided along four key questions:

1. Why archetype analysis?
2. What is it?
3. How to do it?
4. So what?

Considerations for the paper:

- @Why? Position archetypes in the sustainability debate, e.g. aiming at relevant, generalized knowledge to support equitable decision-making.
  - 1) Whatever archetype analysis is done (for generation of system knowledge), it adopts normative criteria implicitly or explicitly → reflect what is the purpose of the analysis.
  - 2) Starting from a definition of sustainable development, easily leads into an idiographic trap due to the value- and context-dependency of sustainable development. Archetypes as an approach to solve idiographic traps.
  - Archetypes as a nucleus of bringing 1) and 2) together, i.e. the systemic and normative perspective. This could become the nucleus of archetypes for sustainability research.
- @ How? Outlining main principles, guide to the Special Issue, referring to the methodological menu paper. Address challenge to look into temporal dynamics, including associated data requirements.
- @ So what? Knowledge produced. What do we do? Re-contextualize again for decision-making, for testing/validating? Outlook to iterative process.
- Who will do the paper? Core writing team will write first draft (expected in summer), then all workshop participants invited.
- The paper aims at reflecting the common understanding of the group, including being precise about the diversity of understandings.
- Paper aims at finding a set of agreed core terms for doing archetype analysis.
- Group coordinator: Christoph Oberlack.

## Methodologies groups

### **Group 1a: Methodological menu**

- The group identified a clear need and opportunity for a paper providing a systematic overview of core methods available to analyse archetypes.
- The preparatory survey results are a key stepping stone.
- Structure the discussion of methods along gradients, such as qualitative/quantitative, purposes, causality explicit/implicit etc.
- The paper can address the question of mixed methods (i.e. how to usefully combine multiple methods to come up with meaningful, high-quality results).
- The group produced a rough paper structure and time plan (in the google folder: <https://docs.google.com/document/d/101kFZFHymuV6b6zc0034APtwNzalZsYEmyZEZdxlXQ/edit>).
- Group coordinator: Diana Sietz.

### **Group 1b: Tackling the methodological challenges**

- The group has identified a number of methodological challenges (see results of preparatory survey: <https://drive.google.com/open?id=0B1xFlAxWhJSmeUpiUENmOG4zMGc> and flipchart photos in the google folder: <https://drive.google.com/open?id=0B4Uga7TxvhCVVWV1MWR3VEMzaWM>, <https://drive.google.com/open?id=0B4Uga7TxvhCVSXXVaRGINQmhBWM8>).
- The group discussed two major challenges in more detail:
  - How to deal with causality / establish causality depending on the used methods, discussion might not depend too much from other methods used to establish causality in social science research.
  - Generalizability: how to specify the range of applicability under which the established archetypes are valid.
- The group identified a clear need and opportunity for a paper outlining the methodological challenges and strategies/best-practices to tackle them.
- Group coordinator: Klaus Eisenack.

### **Group 1c: Transdisciplinarity and the transfer of sustainability solutions**

- The issue of transdisciplinarity was discussed jointly with issues of meanings. In the final plenary, most participants agreed that the opportunities and challenges of using archetype analysis in transdisciplinary research are strong and complex (see section 4.3), and merit special further treatment in a dedicated paper.
- Group coordinator: Stephan Rist.

## Application groups

### **Group 2: Large-scale land acquisitions (LSLA)**

- The theme of governance mechanisms in LSLA situations was of interest to the members of the LSLA group. Due to capacity constraints for implementing a joint study, this theme could be considered for a future project proposal.
- Discussions proceeded mainly along two ongoing projects looking into archetypical patterns of large-scale land acquisitions: the ROSES-project (Ariane and Nick), and the Afgroland and LandMatrix projects (Markus), including:
  - What is the universe of cases/ social-ecological contexts where land deals are likely to occur? Are there different types of Land Acquisitions leading to different types of impacts (domestic/international; small/large; purchase/lease/contracts)
  - How to deal with the trade-offs between multiple sustainability goals triggered by LSLA?
  - Methodological contributions: trajectories, temporal dynamics, scrutinize the range of applicability of Archetypes to support generalisation.
  - We could start by investigations of the ROSES projects (Myanmar; Laos) and taking advantage of the Afgroland projects (Kenya, Mozambique and Madagascar) where a field research is going on today, and LU/LC change is also investigated.
  - Land Matrix Initiative is also interested in research collaboration
- Group coordinator: Ariane de Bremond and Markus Giger.
- Flipchart photo: <https://drive.google.com/open?id=0B4Uga7TxvhCVaWhOeW11azJBRDQ>

### **Group 3: Agriculture-biodiversity trade-offs**

- The group utilized the distinction of diagnostic-design-outcome attributes to look into agriculture-biodiversity trade-offs in Chaco region in Northern Argentina/Southern Bolivia.
- The Chaco region seems to be confronted with a lose-lose situation from the perspective of the local communities. They lose the ecosystem services from the biodiversity and also lose the food security because of soybean monoculture.
- Link to the detailed GoogleDoc:  
<https://docs.google.com/document/d/1s3zbwJsuDeGC0Bw92nVA3eWaWjOWI-xbeWHTk6-KJo8/edit>

### **Group 4: Governance archetypes to cope with footprints in telecoupled systems**

- The group developed a table looking into processes of telecoupling associated with five formal institutions, e.g. value chain standards, conceiving an analytical approach to analyse recurrent patterns of diagnostic, design and outcome attributes.
- Analytical procedure: starting from the outcomes, then deciding on diagnostic attributes, then on design attributes/actor responses.
- An objective is to find ATs that are similar among the different telecoupling stories. One key issue is to analyse the relevance, structure and functioning of territorial- vs. flow-based governance arrangements.

- This is the nucleus of a paper providing conceptual innovations, methodological insights on the analytical procedure and illustrate insights with selected case study evidence.
- Group coordinator: Christian Kimmich.
- Flipchart photo on GoogleDrive:  
<https://drive.google.com/open?id=0B4Uga7TxvhCVX2Z5SHFJMEtPbUE>

#### **Group 5: Social transformations to sustainability at the water-energy-food nexus**

- The group went along the question, how to understand the role of the water-energy-food nexus in system transformations, aiming at implications for policy making for sustainability transitions.
- The goal is to put together a series of stories along the Water-Energy-Food Nexus (WEF) analytical approach proposed by Sergio Villamayor et al. (2015) to understand transformations (both institutional change and technological change), in which action situations are the unit of analysis.
- Relation to archetypes: are there typical linkages in the WEF that are associated with particular transformation pathways?
- Link: <https://drive.google.com/drive/folders/0B1xFlAxWhJSmc114TUqX25OUE0>
- Group coordinator: Sergio Villamayor.

## **6. Resources and Knowledge Management: Google Folder**

Please access the google drive folder to **share resources and to work on joint documents** through:  
<https://drive.google.com/drive/folders/0B1xFlAxWhJSmW19QOG1QazdQTTA>

It contains the **results** of the preparatory survey, bibliography, sign-up sheet for thematic groups, thematic group folders etc.

The google folder will **continue to exist** during the full Workshop Series. Participants can use it, e.g. as a space for advancing the work of their thematic groups.

## 7. Follow-up and Next Steps

### Medium-term:

- **Thematic groups** will collaborate in a self-organized manner. Abstracts due in summer. (group coordinators, all).
- **Skype meetings** of the group leaders planned.
- **Open Call for Papers for Special Feature in Ecology & Society** (expected in June), submission window is in Spring 2018, precise dates in the call; additional empirical analyses particularly welcome (Christoph, Diana, Klaus).

### Short term:

- **Sign up** for groups through [https://docs.google.com/spreadsheets/d/11EPxzmTniQLcPQzQzl\\_Divocct0zxhgYqEFT1nsy62yk/edit#gid=0](https://docs.google.com/spreadsheets/d/11EPxzmTniQLcPQzQzl_Divocct0zxhgYqEFT1nsy62yk/edit#gid=0) (all).
- **Google folder** will continue to exist over the whole process. (all).
- Application to GLP to formalize a **working group** (Christoph); IASC (Klaus); global change, e.g. PECS (Diana).
- **Second archetype workshop** at HU Berlin in end January or end February (doodle by Klaus)
- **Workshop report** (Christoph, Andrea, Patrick, Klaus, Diana)
- **Mail-listserver** (Klaus).

## Attachment

- Flipcharts of group work.
- Slides of flashtalks.