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# IASS DISCUSSION PAPER

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# Transformative Research: The IASS Approach

Simon Meisch

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# Summary

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The Institute for Advanced Sustainability Studies (IASS) explores the characteristics, barriers and drivers of promising sustainability transformations, seeks ethically justified concepts of sustainable development and designs and facilitates transformation processes. As such, it performs transformation research and transformative research. It addresses both societal actors and the scientific community (Chapter 1). Subsequently, the conditions and challenges of the IASS's transformative research approach will be discussed. To begin with, the approach will be located in the broader epistemological horizon of transformative research. This is accompanied by the critique of traditional forms of research and the demand for other, inter- and transdisciplinary as well as transformative forms of research (Chapter 2). Transformative research in particular faces a series of epistemological, socio-theoretical and ethical challenges. The IASS must be aware of these and productively turn them in its work, but also understand them as a specific research task (Chapter 3). Subsequently, it is explained how transformative research is carried out at IASS (Chapter 4) and which orientation points guide its work and advice (Chapter 5).

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# 1. Our Research Agenda

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Since its founding in 2009, the Institute for Advanced Sustainability Studies (IASS) has pursued its mission of exploring, understanding and facilitating transformations towards sustainable development and critically reflecting on its role within these processes.<sup>1</sup> The IASS works to make knowledge effective as a central driver and catalyst of transformations and to gain further insight into these change processes.

The Institute's mission is reflected in the following three guiding questions:

## Guiding Questions of the IASS

1. Knowledge and democratic action in the Anthropocene: What are the conditions, barriers and drivers for promising transformations towards sustainability?
2. Fair communities and shared futures: What conceptions of sustainable development exist? How can they be ethically substantiated? And what can be done to facilitate their social (re-)negotiation?
3. Designing and facilitating transformations: How could and should processes of transformation be designed and supported so that they succeed?

The transformative research approach of the IASS requires a thorough engagement with the methodological foundations of knowledge production. It is necessary, for example, to distinguish various forms of knowledge, understand how they are constituted and how they become effective in specific fields of action, and to reflect on how knowledge generated by the IASS can be transformative. The IASS has accordingly established processes to engage critically with the epistemological and ethical foundations of its research and consultancy activities. By reconstructing and reflecting on the methodologies underpinning its work, the IASS enhances its ability to pursue its mission of conducting excellent research and engaging in strategic dialogues with actors from politics, civil society, and the business community.

The following outline of this transformative research approach provides guidance to researchers as they develop their projects and address their research questions. As a systematic reflection, the transformative research approach describes existing research practice at the IASS and offers insights for its improvement by establishing a horizon within which concepts, terms, methods and theories may be understood (see Opp 2014; Stegmüller 1973; Carrier 2006).

<sup>1</sup> This transformative research approach builds on previous (internal and external) IASS documents and develops these ideas further. Nanz, Patrizia; Renn, Ortwin; Lawrence, Mark 2017: *Der transdisziplinäre Ansatz des Institute for Advanced Sustainability Studies (IASS). Konzept und Umsetzung*, in: Gaia 26(3), 293-296; IASS 2017: *Das IASS: Konzept und Ansatz*; IASS o.J.: *Profil und Selbstverständnis: Zur fortwährenden Mission des IASS*.

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## 2. Transdisciplinary Research in Context

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The concept of sustainable development encompasses democratically driven developments towards globally just and environmentally compatible societies within which both present and future generations are able to pursue their visions of a Good Life (i.e. the Good within the scope of the Right, see Seel 1993). However, the goals of sustainable development cannot be achieved by means of top-down approaches, but must be envisioned in consideration of relevant natural and social contexts. In order to be successful, transformations towards sustainability must be underpinned by public deliberation on both the nature of the society in which we wish to live and on the ways and means by which these visions can be realized in accordance with the ethical principles of intra- and intergenerational justice (see Meisch 2016). In this sense, transformations towards sustainability can be understood as open-ended search processes. Sustainability research supports these processes by generating factual knowledge ('knowing that') and practical knowledge ('knowing how') but also by reconstructing and ethically substantiating the values and norms that guide action (see Mieth 2002; O'Neill 2009).

Transformations towards sustainability are characterised by the simultaneity of increasingly urgent decisions, diverse and often conflicting values, systemic complexities (especially at the porous interface between nature and culture) and epistemic uncertainties (see Strand 2018; Funtowicz & Ravetz 1993). In recent years, efforts to address these challenges have made reference to the concept of the Anthropocene in a fundamental rethinking of humankind's place in the world (see Crutzen 2002; Horn 2014). The Anthropocene is a contested concept that is characterised by diverse and contested understandings of humankind's influence on the natural and man-made environment.

Due to the specific nature of transformations towards sustainability, research in this area must take into account the limits of traditional forms of knowledge generation. The challenges arising in the context of transformations towards sustainable development cannot be addressed by individual scientific disciplines alone. Moreover, many established scientific approaches, methods and quality criteria are ill-suited to meet these challenges (see Ravetz 2006; Fjelland 2016; Jasanoff 2010). The need to develop new paradigms of knowledge production that transcend current disciplinary boundaries and the epistemic limitations of exclusively disciplinary research has been acknowledged since the 1990s. Three developments are of particular relevance to the IASS:

(1) The traditional understanding of science (Mode 1) has been challenged by the emergence of a new paradigm of knowledge production focussing instead on social relevance (Mode 2).

## Mode 1 and Mode 2 Science

“The old paradigm of scientific discovery (‘Mode 1’) – characterized by the hegemony of theoretical or, at any rate, experimental science; by an internally-driven taxonomy of disciplines; and by the autonomy of scientists and their host institutions, the universities – was being superseded by a new paradigm of knowledge production (‘Mode 2’), which was socially distributed, application-oriented, transdisciplinary, and subject to multiple accountabilities.”

Nowotny, Scott, Gibbons 2003, p. 179

In the traditional scientific paradigm (Mode 1), research questions are generated and addressed in accordance with the logic specific to the relevant discipline. The validity of research is grounded exclusively in the consensus established within a respective scientific community on its methods and values. Mode 1 research is understood to provide robust knowledge about reality, which can be taken up and utilized by policymakers to lend legitimacy to policy decisions. This understanding is underpinned by the notion that producing more scientific knowledge will reduce uncertainties for policymakers and increase the legitimacy of their decisions.

However, many of the challenges involved in transformations towards sustainable development cannot be adequately addressed through this classical paradigm of science. Mode 1 research has its strengths within the context of certain analytical limits and suppositions. Yet, often, experimental and quantifying methods focus on idealized systems in an attempt to minimize or exclude ignorance and uncertainties (see Funtowicz & Ravetz 1993; Strand 2018). The inherent epistemic limitations of these idealized models and simplifications become clear when they are applied in the real world; at worst, this results in a form of constructed ignorance (hypocognition), in which the members of a scientific community are incapable of perceiving the inherent weaknesses of their perspective.<sup>2</sup>

In contrast to this, Mode 2 research aims to generate socially robust knowledge: It addresses urgent and pertinent issues, openly communicates uncertainties and unknowns, allows for a (conflictual) plurality of perspectives on a problem, and acknowledges that both the methods by which it generates knowledge and the facts that it brings to light are always value-laden.<sup>3</sup> In order to forestall hypocognition and generate robust knowledge, researchers engage with different disciplines (interdisciplinarity) as well as with affected actors from civil society, business and politics (transdisciplinarity).

<sup>2</sup> In 2008, during a visit to the London School of Economics, Queen Elizabeth II famously asked in reference to the global financial crisis, “Why did no one see it coming?”. Her question touches on precisely the kind of blindness that scientific models are apt to foster (see Streeck 2009; Saltelli & Giampietro 2017).

<sup>3</sup> For more on the objectives of mode 2 research, see Gibbons et al. 1994; Nowotny et al. 2001; Nowotny et al. 2003; Lubchenco 1998; Funtowicz & Ravetz 1993; Schneidewind & Singer-Brodowski 2013; Strand 2018.

## Forms of cross-disciplinary cooperation

- **Multidisciplinarity:** Researchers from different disciplines refer more or less to the same problem, which they address separately. Disciplines remain committed to their respective research goals and practices.
- **Preinterdisciplinarity:** Researchers from one discipline supply expertise to researchers of another.
- **Interdisciplinarity:** Interdisciplinary research is distinguished by a jointly developed research question and research design, as well as cross-disciplinary cooperation on the basis of an intra-scientific problem focus. Methods may be transferred across disciplines or new approaches and methods developed to address a problem. Interdisciplinary research entails closer forms of cooperation between disciplines.
- **Transdisciplinarity:** Extending beyond the academic community, this research engages with actors from politics, civil society and the private sector across the entire research process, in particular including the development of a common research question.

Based on Potthast 2010, pp. 180f.

(2) The criticism levelled at Mode 1 research has consequences for traditional demarcations between science and society. Long-standing notions of the division of labour between science and politics, in which the former provides the facts and the latter accounts for legitimacy, have become obsolete.<sup>4</sup> Instead, when engaging with policymakers, civil society and the private sector, science can no longer restrict itself to the development of strategic options and recommendations for relevant actors. When it comes to issues of urgent relevance to society as a whole, science is often unable to provide reliable knowledge that has been evaluated using established scientific standards. The search for permanent nuclear waste repositories is a good example: given the myriad uncertainties, complexities and value conflicts at stake, it is an issue on which a purely scientific consensus does not – and indeed cannot – exist. In contrast, there are issues – such as global heating – on which a scientific consensus exists. However, the social implications of such knowledge are highly controversial, touching as they do on notions of the Good Life and moral obligations, as well as on individual lifestyles or shared forms of living (see Hulme 2009; Grundmann 2016).

<sup>4</sup> For discussions of the classical division of labour between science and society, see Jasanoff 2007, 2004; Benessia & Funtowicz 2016; Beck 2011; Rudner 1953; Funtowicz & Ravetz 1993.

(3) This has led to calls for the continued development and transformation of the scientific system, beyond the integration of non-academic actors within scientific knowledge production processes (transdisciplinarity), thereby establishing a fundamentally new relationship between science and society. This emerging transformative science explicitly operates within societal contexts in which it accompanies and supports transformations towards sustainable development in collaboration with affected actors (see Schneidewind & Singer-Brodowski 2013). This development is reflected within sustainability studies in the differentiation between transformation research and transformative research:

### **Transformation research and transformative research**

- Transformation research studies the conditions, mechanisms and causes of processes of social change. It generates descriptive or analytical knowledge. Even if transformation research does not itself refer to a specific transformative process, it self-reflexively anticipates its future effectiveness and application.
- Transformative research, by contrast, explicitly claims to be a driver of change: It aims to advance and facilitate processes of societal change by developing possible solutions and supporting their implementation through inter- and transdisciplinary research practice.

(For more on this distinction, see WBGU 2011, pp. 21f. and 322-352)

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## 3. The challenges of transformative research

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Transformative sustainability research at the IASS builds on this distinction between transformation research and transformative research while acknowledging that the concept of transformative research is subject to three strands of criticism.

The first strand of criticism deals with the focus of transformative research on solutions and techno-science. It has been argued that its focus on developing solutions (solution orientation) risks restricting scientific interest to issues that can be described in terms of problems/solutions and to the production of knowledge that is of immediate practical use (solutionism) (see Strohschneider 2014). Doing so would marginalize efforts to generate scientific insights in relation to issues that cannot simply be ‘solved’, but which aim to improve our understanding of the world. If, for example, climate change is defined as a problem that can only be perceived and mastered with the aid of particular scientific practices (usually drawn from the natural sciences), this establishes within transdisciplinary research a primacy of natural and/or techno-scientific forms of knowledge over others (such as local knowledge or the arts) (see Rudiak-Gould 2013).<sup>5</sup> As a result transformative research runs the risk of uncritically adopting techno-scientific narratives about the relationship between science and society that would in fact impede sustainable development.<sup>6</sup>

Secondly, this focus on solutions can blind actors to the fact that there are categories of problems that cannot be solved. These are often referred to as wicked problems (see Rittel & Webber 1973) or trans-scientific problems (see Weinberg 1972). Wicked problems cannot be encapsulated within a simple problem/solution scheme.<sup>7</sup> By contrast, the concept of trans-scientific problems refers to the deceptive certainty that a problem could be solved if it could only be described scientifically. Attempts to provide a clear scientific solution to problems of either category are usually doomed to failure and, at worst, can deliver findings that are so deficient as to be harmful. In both cases, there are no clear-cut solutions to these problems but merely provisional and ‘best-possible’ solutions that are subject to constant social (re-)negotiation (see Ravetz 2006; Grundmann 2016). Many of the challenges addressed by transformation research and transformative research fall into these categories.

Thirdly, in addition to these epistemological considerations, objections have been raised with regard to the post-political focus of much sustainability policy and research worldwide. By calling into question classical demarcations between politics and science, transformative sustainability research risks contributing to an “atrophy of the political” (Strohschneider 2014). This criticism of the post-political orientation of transformative research follows a tradition that resolutely rejects the substitution of political responsibility with scientific expertise.<sup>8</sup>

<sup>5</sup> For more on the epistemological challenges of integrated research, see Beck 2019; Hulme 2011; Lövbrand et al. 2015; Benessia et al. 2012; Hofer & Meisch 2018.

<sup>6</sup> For a critique of techno-scientific framings in (transformative) sustainability research, see Ravetz 2006; Benessia et al. 2012; Benessia & Funtowicz 2016; Fjelland 2016; Pereira & Funtowicz 2015; Jasanoff 2010.

<sup>7</sup> “The formulation of a wicked problem *is* the problem! The process of formulating the problem and of conceiving a solution (or re-solution) are identical, since every specification of the problem is a specification of the direction in which a treatment is considered.” (Rittel & Webber 1973, 161)

<sup>8</sup> For critiques of technocracy, see Habermas 1968a; 1968b; Nanz 2006/2013; Beck 2011; Swyngedouw 2010.

## Critique of post-political sustainability policy

“[Post-politics is] a socio-political arrangement that replaces ideological contestation and struggles by techno-managerial planning. It is a condition where the articulation of divergent and conflicting trajectories for socio-political development is replaced by a normative consensus around common humanity-wide action in face of pending environmental catastrophe. When disagreement is allowed (...), it is primarily with respect to the choice of technologies, the detail of the managerial adjustments, and the urgency of their timing and implementation.”

Lövbrand et al. 2015, p. 214, see also Swyngedouw 2013

Four aspects should be considered here:

(1) While there is some agreement as to what sustainable development might encompass, this by no means translates into a universal consensus on what it means to act sustainably in a specific situation or context.<sup>9</sup> In addition to this, specific expressions of sustainable development (in the form of currently existing institutions, social orders, policies, etc.) have been criticised as unjust.<sup>10</sup> It is vital therefore that transformative research does not presuppose the existence of a social consensus that would render proper public debate of various alternatives superfluous and which just needs to be translated into actionable knowledge by means of transformative research.<sup>11</sup>

(2) Against this background, the implicitly desirable goals and intentions of such research must not blind us to the way in which different forms of transformative research are socially situated; rather, researchers must consider which interests their research serves and which – explicit or implicit – goals it furthers.

(3) While transformative sustainability research claims to integrate conflicting social groups through its efforts to generate knowledge relevant to society, it is not an adequate substitute for either the political sphere or political debate. In light of this, transformative sustainability research needs to elaborate what it precisely means when it claims to integrate the perspectives of diverse knowledge holders: What does it exactly mean by “integration”? (see Strohschneider 2014; Rohe 2015; Grundmann 2007).

<sup>9</sup> For more on the consensus on sustainable development, see Grunwald 2009; Voget-Kleschin & Meisch 2019.

<sup>10</sup> For critical perspectives on aspects of sustainable development, see Sachs 1999; Beck 2010; Swyngedouw 2013; 2014; Blühdorn 2013; 2018; Brand & Wissen 2018; Luke 2009, Springett & Redclift 2015. On ethical and epistemological issues of justice in sustainability research, see Kalfagianni & Meisch 2020.

<sup>11</sup> For more on this, see Swyngedouw 2010; Beck 2010; Lövbrand et al. 2015; Benessia et al. 2012; Beck 2011; 2019.

(4) In light of the aforementioned, transformative research must be self-reflexive and transparent with regard to the nature of the transformation that it seeks to bring about (see Sachs 2013; Brand & Wissen 2018; Blühdorn et al. 2018). In the absence thereof, transformative research risks reproducing the very social perspectives of science, society and politics as well as the associated social and epistemic effects that it seeks to overcome (see Blühdorn 2013). Reflecting on the nature and substance of transformation, transformative research explores the forms, conditions and limits of gradual and disruptive societal change and underscores the productive function of political contestation (see Wilson & Swyngedouw 2014; Swyngedouw 2015).

It is within this broad context that the IASS pursues its particular vision of transformative research and endeavours to address the challenges arising in transformative research for sustainable development.

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## 4. Transformative research at the IASS

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Research at the IASS broadly reflects the widely acknowledged distinction between transformation research and transformative research. Both have their respective research interests and thus raise specific methodological challenges. The IASS has the ambition to explore, within the context of its research activities, opportunities to improve the generation of knowledge for transformations by integrating both types of research. To this end, researchers consider how aspects of transformation research (epistemological, ethical, conceptual or basic research) can ground transformative research and how the methodological and conceptual foundations of transformation research can be deepened and broadened (with respect to co-creation and/or systemic risks, for example) by the more case-specific and contextualized approach of transformative research.

Research and consulting activities are pursued at the IASS in four interlinking modes of action that are weighted according to the requirements of the respective project. These four modes are exploring, understanding, and facilitating of transformations towards sustainable development as well as reflecting the knowledge production processes and the role of the IASS therein. The IASS combines these four modes with three forms of knowledge that play a central role in the literature on transdisciplinary research (system knowledge, orientation knowledge, transformation knowledge) and the above-mentioned types of research (transformation and transformative research).

Literature on transdisciplinary research differentiates between these three forms of knowledge, which shape research processes and their particular perceptions of objects of inquiry (see Vilsmaier & Lang 2014). Acquiring and generating these forms of knowledge requires specific competences and methods. This has implications for the research strategy adopted by the IASS. Reflection on the interrelationships between these forms of knowledge is accordingly a focus of research practice at the IASS.

### **System, Orientation and Transformation Knowledge**

- System Knowledge: the empirical study of present challenges. Empirically studying the current circumstances
- Orientation Knowledge: constructs and shapes the goals of processes of societal transformation. Constructing and substantiating the goals of social transformations
- Transformation Knowledge: Developing practical (political, technical, legal, social, cultural) means and tools to advance transformations and achieve defined goals.”

Nanz, Renn, Lawrence 2017, p. 294

System knowledge is generated by studying the current circumstances and is closely linked to the first of the institute's guiding questions, which focuses on knowledge and democratic action in the Anthropocene. System knowledge deals empirically with the conditions, barriers and drivers of promising transformations towards sustainable development (such as ecological balance, power, or resource scarcity). Related research is empirically oriented. At the same time, it has an explicit normative agenda, as it deals with the conditions for more sustainable forms of living and democratic governance. This research interest is situated in societal debates about human responsibility for profound changes in the natural environment. This also implies an understanding of the normative core and functioning of democratic systems as well as of the dynamics of assuming and attributing responsibility.

Orientation knowledge reconstructs and substantiates the goals of processes of social change and is closely linked to the mode of understanding. Research relating to orientation knowledge links to the Institute's guiding question on fair communities and shared futures and the challenge of how social ideas of sustainable development can be ethically substantiated and socially (re-)negotiated. Broadly speaking, orientation knowledge is generated in two steps:

Firstly, the knowledge that guides action in particular contexts needs to be reconstructed. Usually, this can be achieved using social scientific methods. The reconstructed orientation knowledge may be implicit or explicit. On the one hand, it is often the case that our assumptions of what is due and appropriate are shaped by implicit socio-cultural background knowledge that can advance or impede transformation processes.<sup>12</sup> The values and norms structuring such everyday know-how provide an entry point for research focussed on the development of action-guiding goals (Taylor 1992). On the other hand, specific visions of sustainable development are already widely accepted – see for example the Brundtland Report, the Rio Declaration and the United Nations Sustainable Development Goals – and act as normative points of reference in research on sustainable development. However, these documents are products of political negotiation and expressions of compromise – as such, they are often (and necessarily) ambivalent and to a large extent reflect the values and norms of current elites.<sup>13</sup>

Secondly, efforts to reconstruct values and norms may reveal inconsistencies in their ethical justification, providing good grounds for their re-interpretation or revision. In light of this, research aimed at generating orientation knowledge must not only seek to understand the values and norms at play in transformative processes – whether as drivers or barriers – but must also critically interrogate them. In doing so, researchers should clearly state the normative standpoint that informs their criticism. Reflected orientation knowledge thus presupposes the ability to criticize and substantiate present values and norms and, in the light of systems and transformation knowledge, to make moral judgements that offer guidance in the context of concrete transformative processes.<sup>14</sup>

Transformation knowledge develops the practical (political, technical, legal, social, cultural) means and tools to advance transformations and achieve defined goals and is closely linked to the mode of facilitating. This requires both subject-specific knowledge as well as knowledge of how change can be shaped and guided (transformative expertise). Researchers who participate in knowledge-based collaborations learn to find answers to such questions as: How must co-creative processes be structured so that relevant groups can participate in sustainability transformation on an equal footing? How can options for action be explored and implemented comprehensively? How can action goals be implemented and achieved within the context of diverse interests and how can these goals revisited, revised and (re-)negotiated? Engaging with transformative processes through the production of transformative and transformation knowledge is essential for the third guiding question of the IASS

<sup>12</sup> For more on social sense / disposition, see Bourdieu 1987; Geertz 2000a; 2000b; Böhme 1997.

<sup>13</sup> For a discussion of sustainable development as political compromise, see Meadowcroft 2000; Grunwald 2009; Springett & Redclift 2015; Sachs 1999.

<sup>14</sup> For a discussion on methodological considerations with regard to ethical reasoning, see Dietrich 2007; 2012; Düwell 2008 und Mieth 2002. On moral justification, see Ott 2001; Sandel 2012.

on designing and facilitating transformations: How can and how should transformation processes be (co-)designed to ensure their success?

What role do system knowledge, orientation knowledge, and transformation knowledge play in transformation research and transformative research at the IASS? While system knowledge is more likely to be attributed to transformation research, orientation and transformation knowledge play a role in both research modes. Orientation knowledge is important in the context of transformation research as it identifies the goals pursued by actors and their motivations. Meanwhile, normative ethical reflection seeks to examine and justify the claims to validity of values and norms affecting transformation processes. Orientation knowledge emerges within the context of transformative research as a product of dialogues involving often heterogeneous groups of actors about goals and the options for their implementation. Transformation knowledge is primarily generated in the context of transformation research focused on how and why change does or does not occur. Transformative research, by contrast, generates transformation knowledge by involving the groups and individuals involved in the implementation of goals that are generated and recognized by all, but which are yet to be achieved.

With its co-creative research approach the IASS makes a unique contribution to transformative research for sustainable development. The Institute develops, trials and reflects on forms of co-creation in research projects that aim to harness the knowledge and experiences of diverse actors to advance transformation processes (see for example Bruhn et al 2019). The Institute's approach is informed by the assumption that well-designed cooperation processes can tap into the assembled expertise and perspectives of participants in such a way that new forms of knowledge, agency and creativity can emerge. This also means that transformative research must begin where a problem is first explored, conceptualized, and correlated with possible solutions.<sup>15</sup> In doing so, it must take into account the cognitive, affective and social dimensions of this framing as well as the relevant power structures and positions. As a result, the possible results of co-creative transformation processes are diverse: as well as delivering insights that are (more) actionable and of a higher quality, they generate new options for action and network effects, enhance the abilities and knowledge of participants and alter discourses, narratives, and social imaginaries relating to the initial problem. This makes co-creative approaches particularly useful in addressing wicked problems. In addition to their immediate transformative effects, they frequently deliver effects of the second or third order as actors take their new abilities and knowledge into other contexts.

Transformative research, as practiced at the IASS, differs in four respects from other forms of transdisciplinary sustainability research (see Lang et al. 2012): Firstly, co-creative practice is based on the explicit assumption that it is not simply a lack of knowledge that prevents societies from successfully addressing sustainability challenges. Secondly, co-creative research practice seeks to achieve more than merely gathering and harnessing "non-scientific" knowledge from the margins of science with the aim of bridging a purported gulf between science and society (see Wieck et al. 2012). Thirdly, co-creation resituates both science and scientists within the context of transformative (research) processes in which they are no longer the sole nodes of knowledge production; rather, co-creative transformative knowledge emerges through the interactions of others, including actors from civil society, the private sector and politics, and against a background of diverse motivations. Fourthly, transdisciplinary research is usually centred on context-specific challenges and develops networks among relevant stakeholders (see Klein et al. 2001).

<sup>15</sup> While the concept of co-creation is broader, this practice is unquestionably informed by the literature on deliberative communication, see Habermas 1992; Cohen 1989; Dryzek et al. 2019; McNay 2014.

This conception of co-creation also holds opportunities for cooperation with artists. Within debates on sustainability, the arts often serve merely as a means to render the findings of the techno-scientific disciplines into a more easily comprehensible form in the expectation that this will enhance science communication. But relegating the arts to this role neglects their full potential. They represent an equal access to exploring, understanding and co-creating the complex human environment and have their own methods of integrating and reflecting different forms of knowledge (see Hofer & Meisch 2018). For the IASS, this opens up a broad inter- and transdisciplinary field of action within which researchers and artists engage aesthetically with sustainable development and collaborate to develop innovative strategies that facilitate the emergence of both a common understanding of our present situation and visions of fair communities and futures in which the common good takes centre stage.

As an institute for advanced studies the IASS is ideally placed to implement an ambitious transformative research agenda. According to Abraham Flexner, the founding father of the original Institute for Advanced Study in Princeton, institutes of this type bank on the "usefulness of useless knowledge" (Flexner 1939). Research of this kind can also be described in the words of Hannah Arendt as "thinking without a banister" (Arendt 2018). To the extent that the IASS places itself in this tradition, it undertakes scientific research without an immediate interest in the exploitation of its results and thinks in possibilistic terms, i.e. it explores possible futures without immediately thinking in probabilities (see Hirschman 1971, 1986). Knowledge gained in this way may appear to be useless in the context of current transformation processes, but could well come into its own in the future by enabling leaps in development or expanding our understanding of missing links or unknown unknowns.<sup>16</sup> As an institute for advanced sustainability studies, the IASS explores both the potential for transformative research to produce socially relevant knowledge and its own location within society and the science system.

<sup>16</sup> In other words, processes where neither the results nor the probability of occurrence are known.

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## 5. Orientation for research and consulting

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The aspirations of this transformative research approach must of course be translated into actual scientific practice. This requires that IASS research projects find and adapt appropriate methods and develop quality control procedures in accordance with their respective research interest and object(s) of inquiry.

Transformation research and transformative research will require different approaches at the IASS. While all IASS research projects are characterised by a clear commitment to exploring the role and position of science in knowledge production processes, the answers at which they arrive are specific to each project. This reflects the variety of methods applied in projects at the institute. A transdisciplinary project conducting transformation research on the dynamics of sustainability processes will naturally pursue a different approach and develop different quality criteria than a transformative project explicitly geared to shaping transformations in cooperation with different stakeholders.

### **Introductory literature on the methodological challenges of transdisciplinary research**

- Benessia, A., et al. 2014: *The Rightful Place of Science: Science on the Verge*, Tempe, AZ.
- Bergmann, M., et al. 2010: *Methoden transdisziplinärer Forschung. Ein Überblick mit Anwendungsbeispielen*, Frankfurt/M.
- Bergmann, M.; Schramm, E. (eds) 2008: *Transdisziplinäre Forschung. Integrative Forschungsprozesse verstehen und bewerten*, Frankfurt/M.
- Defila, R.; Di Giulio, A. (eds) 2018: *Transdisziplinär und transformativ forschen. Eine Methodensammlung*, Wiesbaden.
- Defila, R.; Di Giulio, A. (eds) 2016: *Transdisziplinär Forschen – Zwischen Ideal und gelebter Praxis. Hotspots, Geschichten, Wirkungen*, Frankfurt/M.
- Scholz, R.W. 2011: *Environmental Literacy in Science and Society. From Knowledge to Decisions*, Cambridge.

Putting this transformative research approach into practice at the Institute and representing it externally requires that researchers develop a deep and critical understanding of their objects of inquiry and their respective societal and scientific contexts as well as their positionality, ethical and political relevance criteria, societal responsibilities and the value of methodological pluralities. To support this the IASS enables researchers to engage with its transformative research approach through a variety of events and materials.

The transformative research approach offers guidance on how projects can engage with research questions consistently and coherently. It allows for the application of diverse methods and neither prescribes nor prohibits specific methods. In order to reflect the epistemological and research ethical aspirations of the Institute's transformative research approach, consideration should be given to the following criteria:

(1) In-house expertise is crucial for successful transformative research: Given the high standard to which the IASS aspires with respect to both the generation of various forms of knowledge and the reflection of situated knowledge forms, the institute should only accompany transformative processes and advise political institutions and societal actors on areas in which the institute itself is involved in generating knowledge and making it effective. To this end, transformative research should be undertaken in concert with transformation research, and the development of policy advice in concert with basic research and methodological reflection. Transformative research must accordingly be grounded in relevant expertise so that researchers are able to identify the limits and implicit assumptions underpinning the knowledge of potential cooperation partners and handle these appropriately.

(2) Cooperation must be guided by the institute's transformative research approach: The IASS engages in collaborative partnerships with the aim of generating knowledge to support transformations towards sustainability that will foster the common good.<sup>17</sup> The epistemological and democratic-theoretical foundations and implications of these partnerships are accordingly the subject of the institute's research agenda and of discussions with partners. In the absence of such an approach, the institute would risk legitimizing the political, social or economic interests of third parties and, at worst, being used as a scientific "fig leaf" – this would be true even in cases in which the methodology is applied properly.<sup>18</sup> In seeking to fulfil its societal responsibility, the IASS engages with transformative contexts through its (co-)creative research practice and reflects systematically on these contexts and the processes of knowledge generation unfolding within them. To achieve this, research projects must clarify their mandate collaboratively with all those involved (see Bruhn et al. 2019). In order to credibly fulfil its mission, the IASS does not promote the particular interests and views of individual actors – whether they are companies, political parties or NGOs – and is committed to making its advice inclusive, fair and transparent.<sup>19</sup>

(3) Even basic research at the IASS anticipates possible future horizons of application: The IASS does not subscribe to the popular yet questionable belief that science deals in unconditional, context-less knowledge that can be used by non-scientific actors to legitimize their goals. IASS researchers undertaking basic research without any immediate consideration to the usefulness of their findings should accordingly be able to situate their work within a horizon of potential transformative applications in which its impact could emerge.

The IASS aspires to be an experimental space which, by engaging innovative and sound research methodologies, helps to navigate diverse and often unequal knowledge and to make good decisions towards sustainable development.

<sup>17</sup> For discussions of the notion of the common good, see Offe 2001; Ostrom 2011; Nell-Breuning 1990

<sup>18</sup> For more on how powerful actors have sought to co-opt science and/or undermine its credibility, see Oreskes & Conway 2010; Mirowski 2011; Saltelli & Funtowicz 2017.

<sup>19</sup> The terms of reference for cooperation will be established in the institute's forthcoming ethical code.

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## 7. About the author

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Simon Meisch worked from 2018 to 2019 on the reconstruction and refinement of the IASS transformative research approach. Previously, he had led the Junior Research Group "Scientific Ethics of Research for Sustainable Development" at the International Centre for Ethics in the Sciences and Humanities of the University of Tübingen. After studying political science and Modern German literature in Tübingen and Edinburgh, he wrote his doctorate on institutionalism. His research interests include theories, concepts and ethics of sustainable development, ethics and epistemology of sustainability research, ethics of water research and governance. Since January 2020, Simon is senior lecturer in Applied Ethics at the University of Tübingen.



## Institute for Advanced Sustainability Studies e.V. (IASS)

Funded by the ministries of research of the Federal Republic of Germany and the State of Brandenburg, the Institute for Advanced Sustainability Studies (IASS) aims to identify and promote development pathways for a global transformation towards a sustainable society. The IASS employs a transdisciplinary approach that encourages dialogue to understand sustainability issues and generate potential solutions in cooperation with partners from academia, civil society, policymaking, and the business sector. A strong network of national and international partners supports the work of the institute. Its central research topics include the energy transition, emerging technologies, climate change, air quality, systemic risks, governance and participation, and cultures of transformation.

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### Contact:

Meisch, Simon: [simon.meisch@uni-tuebingen.de](mailto:simon.meisch@uni-tuebingen.de)

Kübler, Lukas: [lukas.kuebler@iass-potsdam.de](mailto:lukas.kuebler@iass-potsdam.de)

### Address:

Berliner Strasse 130

14467 Potsdam

Tel: +49 (0) 331-28822-340

Fax: +49 (0) 331-28822-310

Email: [media@iass-potsdam.de](mailto:media@iass-potsdam.de)

[www.iass-potsdam.de](http://www.iass-potsdam.de)

### ViSdP:

Prof. Dr. Ortwin Renn,

Managing Scientific Director

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