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Introduction

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INTRODUCTION

‘For the first time in their history, humans have developed technologies, materials and behavioural patterns that could lead to a collapse of the earth system which would deprive them of their basis for life if they do not renounce “carrying on as before”. Human beings have become their own greatest existential risk. Solving this paradox is a pivotal task for humankind.’
(Glaser 2014: 8)

The present anthology is the result of the conference ‘Spatial transformation: processes, strategies and research design’. This conference was organised by the TRUST/ARL Doctoral Colloquium and took place in the Leibnizhaus in Hanover on 23-24 May 2018 with over 50 participants. The thematic focus is based on the introductory remarks by Rüdiger Glaser in the context of global change, the age of the Anthropocene (Crutzen 2002) and planetary boundaries (Rockström/Steffen/Noone et al. 2009; Steffen/Richardson/Rockström et al. 2015) – all of which necessitate a transformation towards more sustainable lifestyles. When considering spatial transformation processes and the possibilities of shaping them from a scientific perspective, the term ‘Great Transformation’, coined by Karl Polanyi (1978) (WBGU [German Advisory Council on Global Change] 2011), and the demand for transformation research and transformative research (cf. Schneidewind 2013) serve as a point of reference. Taking this as a starting point, the conference provided the opportunity for a detailed discussion of how spatial transformation processes can be investigated, steered and shaped. Particular focus was placed on the mutual dependence of spatial and social transformation and on the opportunities and challenges offered by an inter- and transdisciplinary research design in this context. This entailed methodological and methodical reflections on a previously under-represented discourse. In this respect, the conference aimed to critically discuss both substantive aspects and methodological approaches at the interface between different disciplines and to open up new, interdisciplinary perspectives. In order to devise appropriate points of entry and transdisciplinary research projects even more robustly, the conference was directed particularly towards junior researchers, since ‘Science and research should focus (even) more on the challenges of a transformation towards a climate-compatible, sustainable society. Research should place a greater emphasis on research questions and topics relevant to such a transformation and on the new field of transformation research. At the same time, it should fulfil various structural demands such as a systemic, long-term and inter- and transdisciplinary orientation’ (WBGU 2011: 381). The conference also offered the opportunity to take a closer look at the roles and perspectives of the stakeholders involved in the transformation processes and at their methods. In this context and with reference to the global climate treaty adopted in Paris in 2015, Leinfelder and Maum assert: ‘The imperative of self-obligation on the part of states also results in [...] an imperative of self-obligation on the part of all emission-relevant stakeholders, from companies to

organised civil society and each individual' (2016: 132). The shaping of the transformation processes which are necessary today can no longer only be the responsibility of individual stakeholders. Neither science, policymakers, industry, civil society nor individuals can achieve a trend reversal and establish sustainable transformation processes by acting alone. In order for spatial transformation to be successful and effective, it requires the cooperation of very different constellations of stakeholders. The transdisciplinary approach offers a suitable starting point; this can be defined as follows: 'Transdisciplinarity is considered a powerful and efficient means of using *knowledge from science and society with different epistemics serving societal capacity-building* under certain political cultures; [...] [It is] a means of coping with complex, ill-defined (wicked), contextualized and socially relevant problems that are nowadays often defined in the frame of uncertainty and ambiguity. Transdisciplinary processes can organize sustainability learning and capacity-building in society' (Scholz 2011: 379). Transdisciplinary approaches seem to be expedient particularly if the term 'transformation' is understood to be generally necessary changes 'which should be promoted by "pioneers of change" such as ecologically-oriented companies, citizen action groups or scientists' (Brand/Wissen 2017: 29). This means considering the spatial effects of a socio-ecological transformation, which '[address] the required social changes in order to manage the ecological crisis appropriately' (Brand 2016: 277).

The themes briefly outlined here were discussed from different perspectives in six themed sessions and two keynote presentations. The present volume provides an insight into the broad range of facets relevant to transdisciplinary transformation research. The terms and concepts which have been merely outlined in this introduction are more specifically defined and explained in the individual articles.

In their article, Helga Kanning and Christiane Meyer explore the significance of knowledge transfer and the co-production of knowledge in transdisciplinary research projects. Their work demonstrates the enormous potential of such approaches, while also explaining and legitimising the *third mission* of universities.

Martin Held gives a broad and well-founded overview of the term 'Great Transformation', its various understandings and the meanings attributed to it. In his article, he clearly points out the absolute necessity of a Great Transformation if the guiding principle of sustainable development is to be taken seriously.

Antje Bruns takes up this theme by revealing the specific factors and significance of the Anthropocene as an age of planetary boundaries. On this basis, she argues in favour of taking a critical view, since it is precisely in the associated discourses that critical questioning and a deconstruction of global hierarchies and power asymmetries are needed.

Building on these overviews in the first section, the articles in the subsequent sections offer insights into specific case studies and projects. Section 2 focuses on processes of transformation in social and settlement structures. Jana Kühl takes up the current discussion about sufficiency in relation to lifestyles and presents the practices and

infrastructures for sufficiency-oriented lifestyles. Using a relational approach to space, Jessica Baier outlines a new research perspective on public service provision and infrastructures in rural areas.

Section 3 focuses on 'Regional development and innovation'. In connection with knowledge networks, Milad Abbasihahrofteh and Tom Brökel provide insight into a study on aspects of socio-cultural diversity in Germany. With reference to an empirical case study on technology parks, Elena Franziska Schlich reflects on the significance of geographies of proximity and addresses the question of how spatial proximity can be shaped.

Section 4 is decidedly oriented towards transformation processes in countries in the so-called Global South. Leonie Tuitjer gives an overview of ethical questions and positionality following post-colonial approaches. She maps out the challenges, but also and particularly the opportunities presented by research in the spaces of the so-called Global South. Andreas Eberth presents findings from a case study in the slums of Korogocho in Nairobi, Kenya. He subjects these to a critical examination and identifies the implications for urban planning and spatial development in connection with slum upgrading measures. Sebastian Purwins gives an insight into China's involvement in Ghana using the example of the bauxite-aluminium industry. In the process, he explores the dynamics and consequences of China's economic/ecological double crisis.

New challenges in the context of spaces in transition are presented in section 5. Zora Becker reflects on aspects of village development in the light of new structures of responsibility, while Yvonne Siegmund's essay-like contribution addresses the question of whether openness can be planned, particularly focusing on the temporal dimension in spatial planning. Falco Knaps, Sylvia Herrmann and Tanja Mölders offer approaches for the conceptualisation, capture and integration of place branding processes, which they place in the context of landscape identity. The significance of civic energy cooperatives as change agents for an energy transition is explored by Insa Thimm, with reference to aspects of her empirical survey.

Methodological reflections and selected methodical approaches for the shaping and conceptualisation of transdisciplinary research projects are presented and discussed in section 6. Moritz Engbers introduces the section by showing how spatial transformation processes can be understood and shaped by means of transdisciplinary case studies. Vilja Larjosto and Angelina Göb present different transformative research approaches in the form of research through design and arts-based research. They explore the opportunities and challenges and reveal the potential of a creative approach to the transfer of scientific knowledge.

We hope that the present volume will not only provide an overview of selected aspects of the discourse on spatial transformation and transdisciplinary research but also initiate impulses and ideas for future research projects.

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We trust that there is much here to stimulate and inspire!

Andreas Eberth, Angelina Göb
Speakers at the TRUST / ARL Doctoral Colloquium

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