Call for Papers: *GAIA* Special Issue 2024

Impacts of Real-world Labs in Sustainability Transformations

After almost 10 years of research and action in Real-world Labs (RwLs), this special issue of *GAIA* aims to present and analyse the current state of the art of methodology, scope and objectives in RwL research. In particular, we invite empirical evidence and reflection on the impacts of RwLs on sustainability transformations. This special issue was initiated in the context of the RwL conference, held in June 2022 in Karlsruhe, which brought together 300 researchers, practitioners and intermediaries. With 115 contributions presented at the conference, the broad variety of projects and the emergence of a growing and dynamic transdisciplinary community was showcased. Nevertheless, it became clear that the growing interest in this field of transdisciplinary and transformative research, needs a thorough and encompassing perspective on the traceable and substantial impacts of RwLs and adjacent approaches on sustainability transformations.

Origin, orientation and methodology of Real-world Labs

The normative anchor point of RwLs lies in the concept of a "Great Transformation" (WBGU, 2011) of our societal structures, lifestyles and economies: a comprehensive, deep and programmatic transformation towards a future-oriented and sustainable society. RwLs as an action-oriented research approach aim to support – and accelerate – these fundamental changes for sustainability transitions (Caniglia *et al*., 2020; Beecroft & Parodi, 2016; Parodi, 2019; Wagner & Grunwald, 2015, 2019; Schneidewind *et al.,* 2016; Bergmann *et al*., 2021).

Since their first introduction, there have been diverse and fruitful debates around RwLs as a mode of research, their similarities and differences to other transdisciplinary and transformative approaches, and their methodical and methodological implementations (Schäpke *et al*., 2018, 2018a; Rogga *et al*., 2018; Defila and Di Giulio, 2018; Di Giulio and Defila, 2019; Beecroft *et al.*, 2018). RwLs are part of a broader field of social experimentation in dedicated labs, with adjacent approaches like Sustainable Living Labs (Liedtke *et al*., 2015), Urban Transition Labs (Nevens *et al*., 2013), T-Labs (Charlie-Joseph *et al*., 2018; Pereira *et al*., 2020), Challenge Labs (Larsson and Holmberg 2018) and Urban Living Labs (Puerari *et al*., 2018; Voytenko *et al*., 2015) – all of which are welcome to be addressed in this issue.

RwLs share a number of characteristics with these labs: they build on the ideas of real-world experimentation under participative control (Caniglia *et al*., 2017), of open (social) innovation, and of transfer and upscaling of successful examples (Schäpke *et al*., 2018). They facilitate participatory processes in a transdisciplinary mode of research that include practitioners throughout the process, from co-design via co-production to co-evaluation (Schäpke *et al*., 2018, 2018a; McCrory *et al*., 2020; Wanner *et al*., 2018). RwLs enable learning about transition and impacts at a local as well as at a larger scale (Singer-Brodowski *et al*., 2018; Krütli *et al*., 2018). Apart from these similarities, different approaches and projects choose different ways to engage with sustainability (McCrory *et al*., 2022) and follow different paths for transferring or upscaling their learnings (von Wirth *et al*., 2019; Lam *et al*., 2020).

Aims and scope: Impacts of Real-world Labs on Sustainability Transformations

Building on existing conceptual, methodological and typology-oriented scholarship, we want to draw further attention to the different *impacts and impact mechanisms* of RwLs and their adjacent approaches. We understand impacts as demonstrable and practical effects and results of RwLs on

sustainability transformations, through real-world experiments and RwL structures. This also includes preliminary steps like generated products, immediate outputs and achieved outcomes (see Luederitz *et al.* 2017; Williams and Robinson, 2020). Our core interest lies in the analysis of RwLs impacts on and for a transformation to sustainability.

Initial concepts for assessing the impact of real-world experiments have been proposed (Luederitz *et al*., 2017; Wiek *et al*., 2014; Williams and Robinson, 2020; van Mierlo *et al*., 2010) and the importance of the structural dimension of RwLs has been emphasised (Schneidewind *et al*., 2018; Torrens and von Wirth 2021; Kivimaa and Rogge, 2022). Empirical and comparative *evaluation* of RwL impacts nevertheless remained scarce. Hence, we welcome comparative inquiries or single case studies, qualitative as well as quantitative assessments, possibly building on these or other substantial evaluation frameworks. In order to enhance rigour, depth, comparability, and cross-case learning, we welcome the ***systematic analysis of impacts***. Contributions should describe the impacts of their RwL with reference to addressed ***fields*** (mobility, energy, consumption, biodiversity, equity, etc.); the ***types*** of impact aspired (physical change, introduction of new actor groups, changes in governance or regulation, technical innovation, learning, inner transition, socially robust knowledge etc.); the ***mechanism, practices*** or ***theory of change*** (direct/indirect impacts, effect chains, process information on inputs, products and outputs, creating space for learning, systemic interventions, synergies etc.); the ***scale*** of impacts (within the RwL, beyond the RwL, neighbourhood/regional/(inter-)national level, certain actor groups etc.); the ***temporal pattern*** of the impacts (short/mid/long-term); the relation between ***intended and actual impact*** (intended/unintended, expected/unexpected, positive/negative from different actor perspectives etc.); the ***geographical*** and/or ***cultural setting***; and ***feedback-effects*** from the impacts to the RwL itself. Additionally, we explicitly invite contributions produced in co-authorship with practitioners.

We invite systematic analysis of RwL impacts in the following ***topical areas*** (further impact-related topics can be proposed):

- *Socio-ecological systems change* including, e.g., nature-based solutions, circular-economy, biodiversity in urban contexts or nature conservation and RwLs
- *Individual, collective, and social learning* in and through RwLs including (higher) education perspectives, relating learning to sustainability transformations
- *Communication, inner transition, relational approaches* and *cultures of sustainability* as well as related practices and their impact
- *Governance, institutions,* and *policies* supporting democratic participation and transformation
- *Social and technical innovation* as well as *exnovation and unlearning*, including the interplay of both phenomena
- *Regulatory sand-boxes and experiments* and their impacts on sustainability transformations
- *Arts, design and culture* in transdisciplinary research
- *Systems of RwLs,* including networks of collaboration of RwLs as part of a larger RwL-infrastructure
- *Spatial planning and geography of transitions* in relation to RwLs *Scaling and transfer,* including practicable ways to amplify the impacts of RwLs and RwLs as amplification catalysts
- *Perspectives and roles of practitioners* for the generation and evaluation of impact, including the establishment of communities of practice
- *Methodologies of monitoring, evaluation and impact assessment of RwLs*

Types of contributions

Authors are encouraged to use the different article formats offered in *GAIA*. Besides regular Research Articles, this includes Forum Contributions as well as Design Reports. For details, please see the Guide for Authors: https://gaia.oekom.de/index.php/gaia/Authors

GAIA Open Access Special Issue

Deadlines, Submission, and Review Process

Authors are encouraged to submit abstracts to the SI guest editors. Upon acceptance, authors will be invited to submit full manuscripts. Papers will be peer reviewed. Upon acceptance, they will be published Open Access, with no author fees charged. Papers should be written in English with a short summary (if possible) in German and English. However, in exceptional cases, papers in German may also be accepted.

Please submit your abstract (500 up to 1,000 words) indicating the article type (research article, forum contribution or design report) via E-Mail to: Felix.Wagner@kit.edu

The SI guest editor team includes Felix Wagner, Richard Beecroft, Pia Laborgne, Oliver Parodi (all Karlsruhe Institute of Technology), Matthias Wanner (Wuppertal Institute for Climate, Environment and Energy) and Niko Schäpke (University of Freiburg). Christoph Kueffer (University of Applied Sciences of Eastern Switzerland, St. Gallen) is the responsible *GAIA* co-editor of the SI.

Important Dates

24.11.2022 or earlier	Submission of abstracts (500 to 1,000 words)
January 2023	Invitation for full paper submission
30.04.2023 or earlier	Submission of full papers, followed by reviews, reworking papers, and final decisions on manuscripts
approx. February 2024	Publication of Special Issue

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