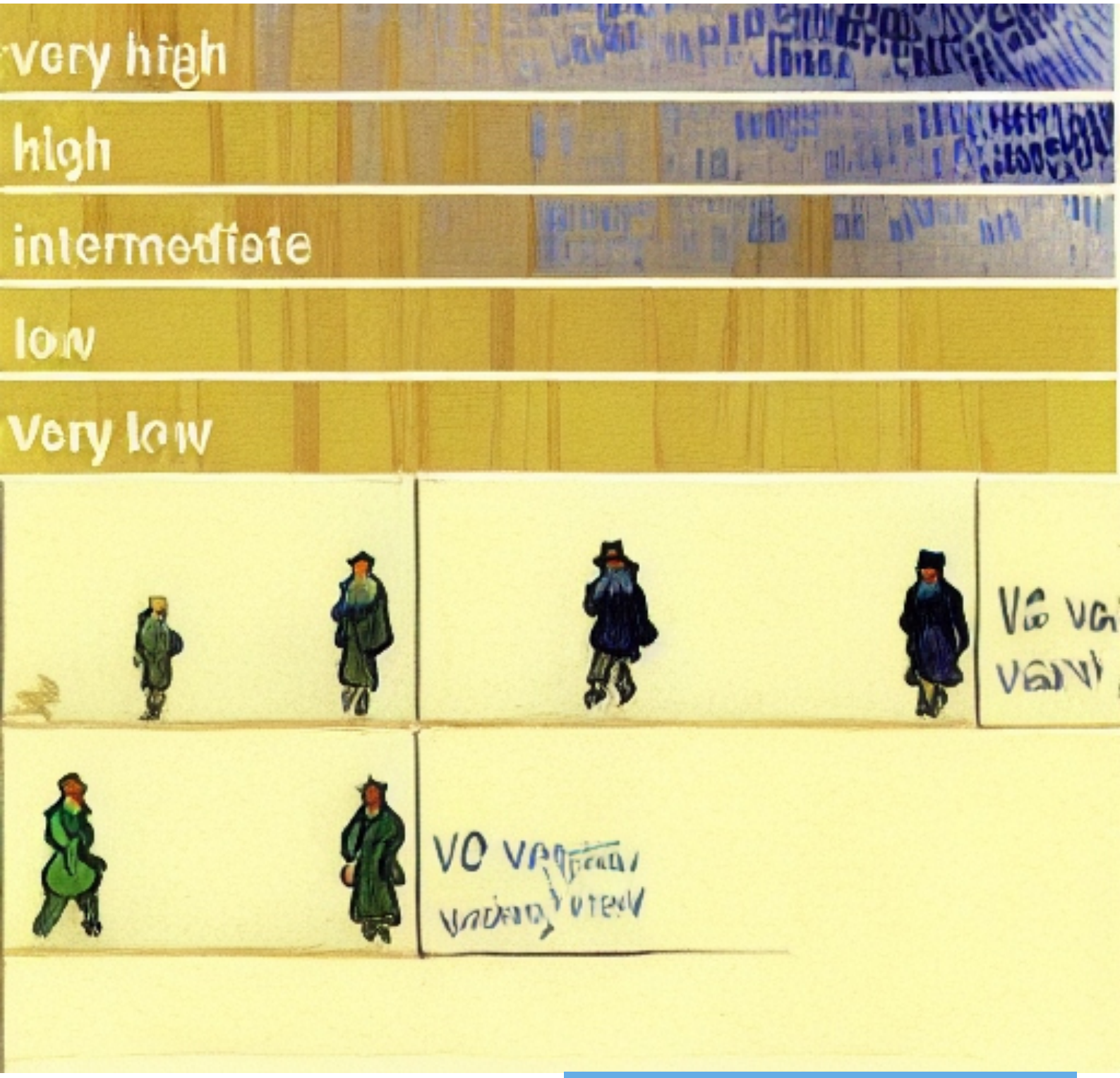
STRN Newsletter



N°47 | March 2023

Sustainability Transitions Research Network.

STRN

Newsletter 47 – March 2023

Content

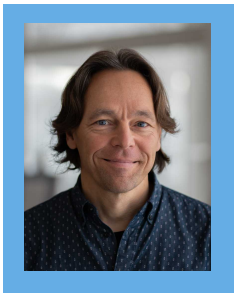
About

The STRN newsletter is published four times a year in March, June, September & December

Cover picture:
Part of Figure SPM.1 of IPCC AR6 Synthesis Report transformed by DeepAI into van Gogh sketch

Editorial

by Jochen Markard



"The latest IPCC synthesis report has once again confirmed the dire need for urgent action to tackle the climate crisis. The report unequivocally states that human activities are responsible for the unprecedented changes in the Earth's climate system and calls for immediate and drastic reductions in greenhouse gas emissions. The report also highlights the risks and impacts of further temperature increases, including more frequent and severe weather events, sea level rise, and food and water scarcity. It emphasizes that achieving net-zero emissions is essential to limit global temperature rise to 1.5°C and prevent the worst effects of climate change. It is clear that sustainability transitions must be accelerated to address these challenges and secure a livable future for all."

The above paragraph was generated by ChatGPT. Tasked with writing this editorial and inspired by my office-mate Alejandro, I have started to explore the tool myself and found it fascinating. It is particularly impressive to observe the speed at which it has improved from its previous version. It seems that, in transition terms, we are currently witnessing the take-off of a generic technology that might uproot existing sectors, businesses and jobs, perhaps altering our lives as profoundly as the internet. I also read that AI tools are getting proficient at writing computer code, eventually re-shaping their own 'DNA' – a development that evokes memories of earlier sci-fi movies with AI taking control.

In our role as researchers, we might see a new generation of tools that can support us in tasks such as proposal or paper writing. At the same time, it will also blur the boundaries between human and machine contributions. Which means that we will be confronted with new ethical questions, e.g., when assessing the accomplishments of students and peers. In addition, AI might also contribute to further changes in the publishing landscape.

In earlier Newsletters, no. 43 and 38 – see STRN website – we have already discussed how the pressure to publish and the perverted business logic of some open access journals have led to an explosion

of articles, special issues, and new journals, putting the credibility of academia at risk. Fortunately, some recent developments might work against the flood of predatory publishing. Clarivate, the firm behind the Web of Science and the journal impact factor, has recently delisted 50 journals "for failing to meet our quality selection criteria."

The delisting includes MDPI's lead journal IJERPH which published more than 17,000 (!) articles last year. For more details, see Paulo Crosetto's Twitter thread. Regular updates on these developments can also be found on the website Predatory Reports.

As a final news item, I am happy to inform you that the formalization and professionalization of STRN is taking shape. We have set up a secretariat at Utrecht University with Dr. Adriaan van der Loos acting as our Network Manager and Lisa Bettoni providing administrative support. We are also happy that six international research centers for sustainability transitions have formally agreed to financially support STRN as institutional members, with another five in the process. With this backing, STRN will be able to provide more resources and support to the community and launch new events in the future.

EIST Journal

We are happy to introduce the most recent issue of EIST, published in Volume 46. The full list of papers is featured in the publication section of this newsletter.

We also welcome Wisdom Kanda (University of Linkoping) as the new Junior Editor of EIST as well as Lars Coenen (Western Norway University of Applied Sciences) as a new Associate Editor.

Bernhard Truffer
Editor-in-Chief EIST

Meet the editors of EIST online event – call for submissions

To encourage submissions from early career researchers, newcomers to the field and scholars working in the Global South, we are organizing an **online "Meet the editors of EIST event".**

This is a call for submission of full manuscripts of which two will be selected for presentation by the authors and will receive feedback from 2-3 editors. The event also includes a Q&A session where participants can ask questions about the editorial and review process in EIST.

The event will be held online on the **27th of April, 2023** (9:00–10:30 CET) and is open for presenters and non-presenters.
Register here: https://forms.gle/M5HbLJ5dNP2swDhj9
Please spread in your networks.

Send your submissions **(deadline 31st March, 2023)** and queries to: wisdom.kanda@liu.se

STRN Events

14th IST Conference, Utrecht, NL
August 30 – September 1, 2023

Abstract submissions for IST 2023 have now closed.

We received nearly 600 submissions, including over 400 full papers, 100 speed talks and 30 dialogue sessions. The review committee is hard at work, and we have an anticipated notification of acceptance at the end of April.

We are also extremely pleased to announce our keynote speakers:

Professor **Maja Göepel** – Co-founder of the World Future Council and Scientists4Future initiative and honorary professor for sustainability transformations at the Leuphana University of Lüneburg

Professor **Mark Swilling** – Co-director of the Centre for Sustainability Transitions at Stellenbosch University

We're very excited and looking forward to seeing you in Utrecht from August 30th – September 1st. And don't forget the NEST **early career researcher day on August 29th**!

Website: www.ist2023.nl
Email: ist2023@uu.nl

Simona Negro, Adriaan van der Loos, Wouter Boon

Save the Date!
The 15th IST Conference will take place in Oslo, from June 17th – 19th, 2024

STRN News

STRN is extremely pleased to welcome the first institutional members and supporters as part of the formalization process:

Copernicus Institute of Sustainable Development
Utrecht University, The Netherlands

Department of Technology, Innovation and Society
TU Eindhoven, The Netherlands

Fraunhofer Institute for Systems and Innovation Research ISI Karlsruhe, Germany

Group for Sustainability and Technology
ETH Zurich, Switzerland

TIK Centre for Technology, Innovation and Culture
Oslo University, Norway

Cirus Research Group
Eawag, Switzerland

We will announce further members in due course.

Other Events

Summer school: Design and Transitions, Rotterdam, July 9-14

We would like to cordially invite you to the Summer School 'Design & Transitions: Emerging Theories and Practices at the Intersection' hosted by the Design Impact Transition (DIT) Platform in collaboration with NODUS Sustainable Design Research Group of Aalto University (Finland).

The summer school provides a space for critical and creative interdisciplinary dialogue between the disciplines of design (research) and transitions (research). It facilitates co-creation of knowledge that transcends their disciplinary boundaries. Although typically operating in isolation, the fields of Design and Transitions (including their scientific foundations and frameworks, their norms, and their methods) are increasingly seen as complementary in the pursuit of achieving sustainable, just and resilient futures. As a result, increasing scholarly attention is being paid to how the fields relate to one another, leading to new configurations and integrations of each. In this summer school, participants will learn about the theories and practices that are typical in these disciplines and together explore effective ways of co-creating knowledge in research and practice contexts of sustainability transitions. The course will provide the participants with both theoretical and experiential learning opportunities through guest lectures, class activities and field excursions.

To learn more about Summer School and to apply, here. Application deadline is 1st of May 2023.

Transformations Conference, July 12-14, 2023. Sydney, Australia, Prague, Czechia, and online

The submission deadline is March 22nd (although likely to be extended for a week or so, so mildly late submissions encouraged!)

At its core, the Transformations Community is a transdisciplinary group of scholars and practitioners, and our sixth biennial conference is a unique transdisciplinary space to connect with inspiring scholars, practitioners and creatives working on sustainable and just transformations. The theme of the Transformations Conference this year is ***Transformative Partnerships for a Better World*** and this call for sessions favors short presentations, long conversations, and practical workshops, especially online sessions. The main events will be taking place online and in person in Sydney, Australia (July 12-19th), and there is a satellite events in Prague, Czechia (12-14th) that focuses on transformative organizations and institutions and in Portland, Maine, USA (17-19th), which focuses on bioregional transformations.
Further information

Mid-term Conference Economic Sociology, University of Florence, 6-8 September 2023,

European economies in transition.

The conference will discuss different socio-economic changes and how societies and economies in Europe are trying to cope with them. The focus is on transition models, new experiments and alternative, hybrid forms of organizing the economy. Thus, papers dealing with the overall conference theme and considering specific features of the ongoing socio-economic transitions are welcome. Nevertheless, we also appreciate presentations and sessions related to economic sociology in general. Thus, we invite proposals on
• current developments and transformations focusing on Europe
• studies on and experiments with sustainable economies
• challenges in the market economy such as digitalization and globalization
• studies on market dynamics and democratic institutions in times of crises
• new theoretical and empirical developments in economic sociology
Please send inquiries or your proposal (about 150 words giving 3-5 keywords, your name, institution and title) to esa2023firenze@gmail.com latest by **May 1, 2023**.

Re-Imagining Coastal Transitions: Diverse Blue Economies, University of Connecticut, November 8-10, 2023

We are facing a crucial 10-year period for sustainability, with coastal communities on the 'front-line' of climate response and adaption. The aim of the United Nations Decade of Ocean Science for Sustainable Development aims is to "reverse the cycle of decline in ocean health and gather ocean stakeholders worldwide behind a common framework that will ensure ocean science can fully support countries in creating improved conditions for sustainable development of the Ocean" (UNESCO 2021). The Blue Economy — now widely accepted and endorsed by stakeholders from governments, industry and civil society — is seen as a promising way towards coastal sustainability and resilience.

This conference aims to reimagine the Blue Economy, not as a business-as-usual approach to economic development, but as an innovative framework that recognizes the diversity of economies, facilitates energized transdisciplinary dialogue and enables multi-

stakeholder activation and empowerment in order to radically reframe coastal and marine economies.

Please submit the name of the author(s), title and affiliation, the title of your proposed paper, your abstract (200 words or less), and five keywords to **both:**
heidkampc1@southernct.edu & trumbull@uconn.edu
by May 1st, 2023 (end of day).
Website

Project News

TRUST – Transition Towards Climate-Neutral Cities 2030

Based on transition management and transition governance thinking, TRUST aims to activate a transformative urban innovation system for climate neutrality in Görlitz/Germany as a pilot case. To this end, an intensive transdisciplinary knowledge transfer will take place between the Leibniz Institute of Ecological Urban and Regional Development (IOER), as the coordinating research facility, the city administration as well as local actors from civil society and local economy as collaborating partners supported by ICLEI Europe. The transfer will build on current findings from sustainability transition and urban research as well as on interdisciplinary, transdisciplinary and transformative research experiences. Beyond the concrete local results, the Görlitz pilot project is intended to serve as a reference case for other German and European small and medium-sized cities in peripheral regions in the transition process to climate neutrality.
The project is funded within the Leibniz competition, awarded by the Leibniz Association.

More information: https://www.ioer.de/en/projects/trust
Contact/PI: Markus Egermann m.egermann@ioer.de

Governing University Living Labs for Sustainable Development: Lessons from International Case Studies

University Living Labs are an important vehicle for real world experimentation and learning because they bring together community, government, business, NGOs, and researchers on and off campus to work towards common goals for sustainable development and other societal challenges like sustainability, which are beyond any one group to tackle alone. Living labs involve university-industry partnerships, experiential learning for students, use of the campus as a testbed, and knowledge translation and commercialisation for social impact.
The study highlights that while University Living Labs take a variety of forms, they often face common challenges associated with insufficient governing structures, ad hoc funding, siloed institutional cultures, and a lack of shared understanding. The report makes practical recommendations for overcoming these challenges through flexible coordination, investment, facilitation, and communication.

Report Launch Webinar recording (14 March 2023):

For further information, contact: Paris Hadfield

Publications

PhD Theses

Rojas-Arevalo A.M. (2022)
Sustainability transitions modelling and assessment of socio-technical energy systems: An Australian case
The University of Melbourne
Link

This thesis aims to understand the sustainability impacts of different socio-technical configurations of the electricity system in Victoria, Australia, by answering the following questions: how to represent socio-technical systems for electricity provision across different scales? How to quantify the changes in key sustainability measures from socio-technical configurations? And what are the key leverage points in socio-technical innovation and policy interventions that will facilitate Victoria's electricity system's just and sustainability transition? … The research uses scenario analysis and search algorithms to find different transitions depending on pre-defined sustainability and energy justice goals. The STLs and the historical narrative show the incremental complexity in the system's configuration during its three main regimes — emerging, public, and private — of development. This qualitative analysis also shows how the system's STL responded to the day's perceived societal needs and objectives. The computer model and the exploration of future transition pathways show incremental, disruptive, and radical interventions through multiple policy mixes and STLs that would facilitate just and sustainable transitions in Victoria's electricity system. The research contributes to the value of bridging systems modelling and analysis approaches to inform real-life decision-making and can be generally applied to other infrastructure-bounded services such as water, waste, and food.

Schiller, K. (2023)
Growing agroecology in Nicaragua: Towards a multi-scale perspective on agroecological transitions.
Wageningen University
Link

With agri-food systems recognized as a major contributor to climate change, as well as already strongly impacted by climate change, transitioning to more sustainable systems of food production and consumption is paramount. This dissertation is based in a case study of Nicaragua, a forerunner in agroecology since the 1980s, and documents and unpacks the transition to agroecology in Nicaragua using a socio-technical systems lens. Mixed qualitative and quantitative methods data-gathering and -analysis methods were used. A context chapter dives deep into the historical developments influencing agroecology in Nicaragua. Three empirical chapters zoom out from the farm to national scales, investigating the agroecological transition at the scale of individual farmers, organizations working to support agroecology, and the national agri-food system. Overall, four main issues are identified that hinder agroecological transitions and implications derived for agroecological policy and practice. Recommendations are given for how these issues may be addressed by different stakeholder groups (national governments, civil society, private sector).

Simons, M. (2022)
A discursive perspective on socio-technical sustainability transitions: insights from the German packaging sector
Freiburg University
Link

To secure satisfying and sustainable livelihoods for current and future generation, a transition in the modes of production and consumption is crucial. So far, transition research has mainly focused on the technological, institutional, and behavioral side of transitions and explored some promising attempts to include the normative dimension in its analyses as well. Nevertheless, a more structured exchange with interpretative discourse analysis to address the role of discursive elements and dynamics in transitions is missing. To address this gap, this dissertation provides a discursive perspective on socio-technical sustainability transitions, using insights from the German packaging sector and its transition towards a sustainable circular economy.
Overall, this dissertation shows how a discursive perspective can help to deconstruct the underlying values and assumptions of socio-technical configurations, while illuminating discursive sources of resistance that otherwise would have remained hidden. Additionally, it provides hands-on methodological approaches and tools to assess the normative dimension more explicitly as well as how to analyze discursive lock-in mechanisms next and in relation to its material, institutional, and behavioral counterparts. Empirically, this dissertation disentangles the various stabilizing and enabling discursive dynamics shaping the directionality, potential, and disruptiveness of the transition process towards a circular economy in the German packaging sector. Based on these finding, the dissertation argues that (1) enabling discussions on the desired directionality of transitions, (2) targeting interventions at overcoming resistance to change, and (3) shifting the focus from shallow to deep system

change, are crucial for successful transition processes.

Smith, S.R. (2022)
Towards an understanding of advocacy coalitions for rapid transition to net zero carbon in the United Kingdom
University of Surrey
Link

Much research on the decarbonisation transition has been sociotechnical in nature. There is less research on enabling conditions and processes for accelerating political/policy changes. The UK has opted for a cost-efficient 'net zero by 2050' target, which maintains power-relations and attempts to de-politicise the issue. This research argues for a more radical, science- and equity-based 'rapid transition' to net zero by 2035 at the latest. How can rapid transition advocates succeed in re-politicising and building sufficient common cause to trigger radical political change? What strategy and narrative vision would be needed? The more radical the policy ambition, the more necessary it becomes to describe a political process that can result in the desired interventions, beginning with the 'ecosystem' of actors and coalitions, political economy, institutions, and other contexts that currently exist. Based on a novel method for categorising and mapping actors in the UK climate policy 'ecosystem', and on a thematic analysis of 47 expert interviews and 100 expert views in total, this multidisciplinary research examines the political, sociological, and psychosocial dimensions of sustainability transitions and proposes an adapted multilevel perspective for rapid political and policy transition. It finds the potential exists for an advocacy coalition for rapid transition, but its prospects for achieving decisive political influence are slim in the current UK context. It recommends a combined 'top-down' and 'bottom-up' approach, one that creates and sustains a nationally coordinated movement, but also one that is place-based and participatory and puts citizens at the forefront of radical societal transformation.

Zepa, I. (2022)
Negotiating Change: The Political Economy of Technological Transitions for Sustainable Development
ETH Zurich
Link

Environmental sustainability requires urgent action for us not to compromise the ability of future generations to survive and thrive. Clever policies can facilitate the otherwise arduous and slow sustainability transition processes. Nevertheless, negotiating change is difficult, as policies are embedded in their political contexts. Essentially, we can accelerate transitions, but failing to do so will have dire consequences, reverberating in lost livelihoods, economic and social inequality, and even conflict. Therefore, we must ask: How do political factors shape policy for sociotechnical transitions towards sustainability?
This thesis addresses three aspects of policy and politics of sustainability transitions and makes a threefold theoretical contribution to the sustainability transition scholarship. First, the dissertation identifies overarching political barriers to sustainability transitions and introduces a framework to assess these in their institutional contexts. Second, the thesis suggests an approach to integrating vertical governance levels in analysing sustainable policy mixes, revealing possible friction points. Third, the dissertation unpacks normative aspects of sustainability transitions by conceptualising legitimacy formation for technological change. Together, these aspects highlight the feedback mechanisms between policies, political contexts, and technological transitions for sustainable development.
The dissertation primarily relies on qualitative research methods to ensure nuanced contextual awareness of aspects that cannot be quantified in a meaningful way. The research is set in the empirical context of the European Green Deal and explores two critical sectors: energy and plastics. Geographically, this dissertation places a region on the academic map that is novel to sustainability transitions research – the Baltic states of Estonia, Latvia, and Lithuania.

Books

Köhrsen, J., Blanc, J., & Huber, F. (2022)
Religious Environmental Activism: Emerging Conflicts and Tensions in Earth Stewardship.
Routledge.
Link

This volume explores how religious and spiritual actors engage for environmental protection and fight against climate change. Climate change and sustainability are increasingly prominent topics among religious and spiritual groups. Different faith traditions have developed "green" theologies, launched environmental protection projects and issued public statements on climate change. Against this background, academic scholarship has raised optimistic claims about the strong potentials of religions to address environmental challenges. Taking a critical stance with regard to these claims, the chapters in this volume show that religious environmentalism is an embattled terrain. Tensions are an inherent part of religious environmentalism. These do not necessarily manifest themselves in open clashes between different parties but in different actions, views, theologies, ambivalences, misunderstandings, and sometimes mistrust. Keeping below the surface, these tensions can create effective barriers for religious environmentalism. The chapters examine how tensions

are manifested and dealt with through a range of empirical case studies in various world regions. Covering different religious and spiritual traditions, they reflect on intradenominational, interdenominational, interreligious, and religious-societal tensions. Thereby, this volume sheds new light on the problems that religions face when they seek to take an active role in today's societal challenges.

Papers

EIST Volume 46

Katharina Hölscher, Julia M. Wittmayer, Alfred Olfert, Martin Hirschnitz-Garbers, ... Georg Schiller
Creating actionable knowledge one step at a time: An analytical framework for tracing systems and agency in niche innovation pathways

Barbara Kump
Lewin's field theory as a lens for understanding incumbent actors' agency in sustainability transitions

Iain Cairns, Matthew Hannon, Tim Braunholtz-Speight, Carly McLachlan, ... Ed Manderson
Financing grassroots innovation diffusion pathways: the case of UK community energy

E.-(Els) Beukers, L.-(Luca) Bertolini
Fostering learning beyond urban experiment boundaries

Anna Bergek, Teis Hansen, Jens Hanson, Tuukka Mäkitie, Markus Steen
Complexity challenges for transition policy: lessons from coastal shipping in Norway

Minna Kaljonen, Teea Kortetmäki, Theresa Tribaldos
Introduction to the special issue on just food system transition: Tackling inequalities for sustainability

Marc Wolfram, Miriam Kienesberger
Gender in sustainability transition studies: Concepts, blind spots and future orientations

Yuhao Ba, Christopher S. Galik
Historical industrial transitions influence local sustainability planning, capability, and performance

Huiwen Gong, Teis Hansen
The rise of China's new energy vehicle lithium-ion battery industry: The coevolution of battery technological innovation systems and policies

Laura van Oers, Giuseppe Feola, Hens Runhaar, Ellen Moors
Unlearning in sustainability transitions: Insight from two Dutch community-supported agriculture farms

Auvikki de Boon, Sabrina Dressel, Camilla Sandström, David Christian Rose
A psychometric approach to assess justice perceptions in support of the governance of agricultural sustainability transitions

Maria Altunay, Anna Bergek
Interaction between energy incumbents and solar entrants: Relationship status complicated

Qi Song, Karoline Rogge, Adrian Ely
Mapping the governing entities and their interactions in designing policy mixes for sustainability transitions: The case of electric vehicles in China

Avri Eitan, Itay Fischhendler, Alfons van Marrewijk
Neglecting exit doors: How does regret cost shape the irreversible execution of renewable energy megaprojects?

Valeria Costantini, Francisco J. Delgado, Maria J. Presno
Environmental innovations in the EU: A club convergence analysis of the eco-innovation index and driving factors of the clusters

F. Aggestam, M. Miedzinski, R. Bleischwitz
The mirage of integration: Taking a street-level perspective on the nexus approach

Primož Medved, Urša Golob, Tanja Kamin
Learning and diffusion of knowledge in clean energy communities

Fanni Moilanen, Tuomo Alasoini
Workers as actors at the micro-level of sustainability transitions: A systematic literature review

Andersen, A. D., Markard, J., Bauknecht, D. and Korpås, M. (2023)
Architectural change in accelerating transitions: Actor preferences, system architectures, and flexibility technologies in the German energy transition.
Energy Research & Social Science 97, 102945
Link

Despite growing research attention to accelerating transitions, the process of acceleration is not yet fully understood. It, for example, remains unclear whether or not acceleration requires deep changes in the architecture of sociotechnical systems and associated disruption to incumbents. We begin to unravel this issue by introducing a new framework for studying architectural change which foregrounds the role of actors. Based on a distinction between core and architectural technologies we outline four acceleration pathways that involve varying depths of system change and actor reorientation. … We apply the framework to study the transition in the German electricity system, where actors disagree about how decentralized the system architecture should become. To understand the nature of actor contestations around renewables integration solutions, we study actor preferences for different architectural technologies and system architectures. We find that incumbents prefer established centralized architectural technologies but, because these are difficult to expand, they reluctantly accept a role for emerging decentralized alternatives. Challengers support architectural technologies that are more disruptive. Our analysis suggests that accelerating transitions that include architectural change may, paradoxically, be very slow because they can alienate incumbent actors. This points to important trade-offs between the speed and depth of change in transitions.

Artmann, M. (2023)
Human-nature resonance in times of social-ecological crisis – a relational account for sustainability transformation.
Ecosystems and People 19(1), 2168760.
Link

Despite increasing efforts by research and policy to approach sustainability, human impact on nonhuman nature is intensifying the current social-ecological crisis. To foster sustainability transformation, there is a need to re-think qualities of human-nature connections which calls for relational discourses that provide alternatives to the predominance of mindsets postulating a human-nature divide. Against this backdrop, this conceptual paper introduces 'human-nature resonance' as a relational account that provides system, target, and transformation knowledge for sustainability transformation. The paper argues that the social-ecological crisis has one of its root causes in mute human-nature relations. On this basis, it is illustrated how the social-ecological crisis is only slightly affecting the behaviours of Western societies, which are subsequently failing to establish responsive human-nature relations. Considering that mute relations are fostered by making the world constantly available, the non-affective human-nature relation can be traced back to a lack of material and moral boundaries of nonhuman nature perceived as a lifeless object of infinite availability. For strengthening human-nature resonance, the paper calls for the vision of human-nature partnership neglecting hierarchical human-nature relations. To strengthen the human-nature partnership, nature will speak with an own voice by assigning her legal personhood, agency, and soulfulness. Furthermore, human self-efficacy needs to be strengthened to listen to nature by nourishing internal relational capacities such as compassion and self-worth. Future work on human-nature resonance can integrate basic and applied inter- and transdisciplinary research which links natural and social sciences, Western and Indigenous ontologies, and the scientific world of logos and transcendental wisdom.

Bazzani, G. (2023)
Climate solidarity: A framework and research agenda for low-carbon behavior.
Sociological Forum.
Link

Climate-change mitigation is a matter of solidarity. Behaviors that primarily benefit other people are prosocial behaviors that can be considered solidarity at the collective level. For climate-change mitigation, green- house gas emissions have to be reduced primarily in wealthy countries, while the major beneficiaries of such a reduction are the populations of developing countries and future generations, who (will) suffer the significant negative consequences of climate change. Climate change has created a new global interdependence that requires a new form of solidarity as a global and intergenerational prosocial behavior. Low-carbon behavior has so far been mainly studied as a form of pro-environmental behavior but not as a form of prosocial behavior. The article identifies four approaches to explaining the origin of prosocial behavior that can be applied to the emergence of low-carbon behavior: rationalist, institutionalist, interactionist, and situational approaches. The scope conditions and limitations of each approach in the case of low-carbon behavior are discussed, together with relevant empirical evidence, future research directions, and policy implications. The article lays the foundations for the study of climate solidarity as a new interdisciplinary field of research that can make a key contribution to the transition toward low-carbon societies.

Borges, C. B., Silberg, T. R., Uriona-Maldonado, M., Vaz, C. R. (2023)
Scaling actors' perspectives about innovation system functions: Diffusion of biogas in Brazil
Technological Forecasting and Social Change, 122359
Link

Various technologies have been disseminated to digest organic waste, capture biogas and provide sustainable energy. Despite numerous efforts to diffuse biogas technology in Brazil, uptake remains slow. This may be due to low recognition among key actors that support the technology with resources in a wider Innovation System (IS). We explore how actors view the existence of this IS in Brazil and its fragmented context. To investigate actor views and perceptions, we employ a factor analysis and an item response model to map out system functionality. The analysis unveiled the existence of a non-balanced IS, awaiting to accelerate its expansion phase given current entrepreneurial activities, but remains impeded by limited resources and legitimacy. Actor responses indicate that for the expansion phase to accelerate, energy markets need to be established via state and federal support. These markets demand support from utility companies who influence the IS across multiple facets (e.g., public tender, tariffs, energy auctions). Ultimately, the expansion phase is hinged upon the creation of a national policy that includes short-term objectives for biogas shared between stakeholders and an outlined role for utility companies to integrate renewable energy sources.

Braunreiter, L., Marchand, C., & Blumer, Y. (2023).
Exploring possible futures or reinforcing the status-quo? The use of model-based scenarios in the Swiss energy industry.
Renewable and Sustainable Energy Transition, 3, 100046.
Link

Energy scenarios are often claimed to support decision-makers involved in the energy transition. However, an empirical understanding of how decision makers select, interpret, and use energy scenarios is largely missing. This study examined how high-level public utility executives in the energy sector, a key target audience of energy scenarios, perceive and interact with energy scenarios. Based on interviews with representatives of 20 Swiss utilities, we show that the use of scenarios is rarely part of a formalized process aimed at assisting decision-making processes. Instead, the selection of scenarios is often contingent on users' perceptions of their legitimacy, credibility, and salience. While utility executives could rely on a wide variety of scenarios published by academic, corporate, and non-governmental organizations, they often focus on a limited set. Given the complexity of contemporary energy scenarios, which are often based on sophisticated energy system models, familiarity with publishing organizations and reporting styles is an important selection heuristic for users. This stands in contrast to the purpose and often stated key motivation of considering a broad range of plausible futures and their associated trade-offs. Our results suggest that to evaluate the impact of energy scenarios, social-scientific research also needs to consider user groups that are neither involved in participative modeling activities, nor collaborating with scenario developers in any other form. The usefulness of energy scenarios in these contexts and particularly their capacity to contribute to integrative deliberations on plausible and desirable energy futures is highly relevant, yet largely unknown.

Coenen, T. B. J., Visscher, K. & Leentje, V. (2023)
A systemic perspective on transition barriers to a circular infrastructure sector
Construction Management and Economics 41
Link

Due to the large use of resources and waste generation, the transition to a circular economy (CE) has become a major sustainability-related topic in construction. Intentions to achieve circularity are shared widely, but developments are slow in practice. This study identifies systemic barriers to the circularity transition from a social-technical systemic perspective. We used the Mission-oriented Innovation System (MIS) framework to provide insights into the problems and potential solutions underlying the circularity mission, the structure of the system and the system dynamics. Based on the analysis of a wide range of policy documents and twenty in-depth interviews with stakeholders in the Dutch infrastructure sector, three vicious cycles were identified that form persistent barriers to the transition: (1) the CE contestation cycle given the contested nature of the circularity mission; (2) the knowledge diffusion cycle given the need to adopt and diffuse knowledge; and (3) the innovation cycle when it comes to procuring and upscaling circular innovations. These barriers all relate to processual, organizational and institutional challenges rather than to technological ones. This indicates that construction managers, policymakers and researchers in the field of infrastructure circularity should shift their focus from specific circular solutions to creating appropriate conditions for changing current and introducing novel processes that facilitate circular ways of doing things.

Cohen, A., Fischhendler, I., & Katz, D. (2023).
Institutional acceptance of wildlife mitigation technologies for wind energy: The case of Israel.

Energy Policy, 173, 113359

While the existing literature on the acceptability of renewable energy focuses primarily on stated preferences of individual acceptance, this study focuses on a socio-political dimension of acceptance by examining revealed preferences as evidenced by stakeholder interactions within a regulatory process. Specifically, we examine the acceptability of technology designed to mitigate harm to wildlife: a Shutdown On Demand (SOD) technology. Taking a longitudinal approach, we review planning protocols covering four years of negotiations over this new mitigating technology in the case of a proposed wind farm to be located along a major international corridor for migrating birds. We develop three separate indicators of institutional acceptance and demonstrate how exposure to different types of uncertainties influenced acceptance of the technology over time. We also show how various responses to these uncertainties can resolve gridlocks around institutional acceptance. The study offers insights into the development of negotiations strategies for different stakeholders over time. It also offers recommendations for policy designed to resolve issues inhibiting institutional acceptance, including data gathering and exchange, issue linkage strategies, and incremental regime building.

Eitan, A., Fischhendler, I., & van Marrewijk, A. (2023).
Neglecting exit doors: How does regret cost shape the irreversible execution of renewable energy megaprojects?
Environmental Innovation and Societal Transitions, 46, 100696.

The energy transition process nowadays is characterized by the replacement of fossil fuels-based means of production with renewable energy (RE). Alongside the diffusion of decentralized RE, this process is associated with the increased promotion of RE megaprojects. Such megaprojects, however, are often shaped by path-dependent lock-ins and thus continue to be promoted with limited changes despite the emergence of better alternatives along the way. This study explores the role of lock-ins in the irreversibility of RE megaprojects while highlighting the notion of regret cost. In particular, the study sheds light on the influence of lock-ins within megaprojects, specifically focusing on their execution stage. Using the establishment process of Ashalim, a giant thermal solar power station in southern Israel, as a case study, we demonstrate how various lock-ins increase regulators' regret cost, thus escalating their commitment to the megaproject and causing them to neglect diverse "exit doors" during execution. We thus illuminate the irreversibility of RE megaprojects and question their capability to meet the growing need of energy markets for flexibility.

Elkjær, L. G., & Horst, M. (2023).
Rights or resources? Local actor roles in 'participation' and 'co-creation' in wind energy transitions.
Energy Research & Social Science, 97, 102966.
Link

Co-creation has been heralded as a potential solution to the often controversial implementation of renewable energy projects. In this paper, we therefore investigate how such co-creation processes work in practice. We present a case study of an onshore utility-scale wind power project in Denmark that developed into a nexus of interaction among a range of actors seeking to materialize their preferred configuration of the project. By applying situational analysis, the paper demonstrates how citizens can assume different roles when engaging in co-creation and participation respectively. While the co-creation situation allows actors to become involved in new ways, it also produces tension with regard to other participatory formats employed in the governance of wind power projects. Local actors engaging in co-creation were able to shape the project more directly and materially than citizens involved in the standard procedural spaces typically offered in wind-energy transitions. However, the co-creation process did not manage to include all local perspectives and local citizens who did not engage with the co-creation format, but resorted to the standard procedural spaces of 'hearings,' making them feel increasingly marginalized during the process. Consequently, whether co-creation is a 'better' form of participation depends on the perspective one adopts.

Feola, G., Goodman, M. K., Suzunaga, J. & Soler, J. (2023)
Collective memories, place-framing and the politics of imaginary futures in sustainability transitions and transformation
Geoforum, 138, 103668
Link

A geographical perspective is crucial to understanding sustainability transitions and transformation, but previous research on place framing in sustainability transitions and transformation has had a marked focus on the politics of the future and its performativity in the present. This paper analyzes place-framing in sustainability transitions and transformation by examining how the conflicting collective memories of a place and the framings of the future of this place interact and lead to the justification of particular forms of socio-material development, land use and sustainability of the peri-urban spaces of the city of Sogamoso, Colombia. Based on 38 semi-structured interviews, we identify three distinct assemblages of

future visions, collective memories and place frames, which we call urban development, recovering tradition, and cultural revitalization. The analysis shows that place framing is an exercise through which collective memories and future visions are connected and co-constituted in a spatio-temporal 'dialogue': collective memories, future visions and place frames are processes of social construction activated in the attempt to shape or contest sustainability transitions and transformation. We contend that the existence and mobilization of collective memories—and their critical influence on future visions—are a core aspect of the politics of place framing fundamental to the socio-material processes of sustainability transitions and transformation. Furthermore, a politics of place-making in sustainability transitions and transformation involves acknowledging and negotiating collective memories of the past as much as future visions. This suggests ways to critically counterbalance the marked future orientation taken in recent years by sustainability science and transition studies.

Gschwendtner, C., Knoeri, C. and Stephan, A. (2023)
Mind the goal: Trade-offs between flexibility goals for controlled electric vehicle charging strategies.
iScience, Vol. 26 (2), 105937
Link

Electrification is one of the main decarbonization strategies for transportation. While uncontrolled electric vehicle (EV) charging can challenge the electricity system, controlled EV charging can offer flexibility. Using an agent-based model, we simulate combinations of two elements of EV charging, plug-in behaviors and controlled-charging processes, and measure flexibility goals with four metrics:
total load shift, increase in midday load, peak reduction, and flatness of the load curve. We reveal trade-offs between these flexibility goals, which indicate that the most beneficial combinations are specific to spatial areas and their flexibility goals. Furthermore, we find that controlled-charging processes show higher impact on the flexibility metrics than plug-in behaviors, particularly with high EV and charging-station diffusion, but less so in rural areas. Incentivizing beneficial combinations can increase the flexibility potential of EV charging and potentially avoid grid reinforcements.

Haukkala, T., Niinimäki, K. & Turunen, L. L. M. (2023)
Fashion in turmoil: impact of the COVID-19 pandemic on Finland's textile and fashion industry
Sustainability: Science, Practice and Policy, 19:1, 2173424
Link

With continuing climate change, consumers are reconsidering their fashion-consumption habits and clothing and apparel businesses are critically examining their industrial practices. The coronavirus pandemic can be considered a turning point as it has significantly affected the textile and fashion industry. By applying path-dependence theory to analyze developments in the textile and fashion industry in Finland, this study investigates prior pivotal moments to better understand how crises can provide possibilities for transformation. We first provide a historical review that aims to identify external shocks as major transitional events and examines their implications for short- and long-term trends. The study then analyzes the changes triggered by COVID-19 in the textile and fashion industry using empirical data collected from Finnish companies. The study reveals that the pandemic forced some firms to introduce several changes into their practices as part of efforts to survive, including innovations at all levels of design and manufacturing as well as new ways of managing sales and marketing. In addition, the crisis has been an opportunity to take steps toward societal and environmental transformation through more open and responsible business models involving a shift to local or close-by production to reduce environmental impact, to secure decent factory-working conditions, and to engage customers to reduce their consumption. The article concludes by considering issues relevant to the future of this industry during the post-pandemic period.

Hoicka, C. E.
How do we practice equity, diversity and inclusion in sustainable energy research? Advice for modern researchers
Energy Research & Social Science 97
Link

Climate change is one of society's biggest and most existential challenges in scale and scope. The energy sector is the largest contributor to climate disruption, and low-carbon energy solutions are needed for mitigation. However, the energy sector, and sustainable energy research, are not representative of society at large. Equity, diversity, and inclusion (EDI) activities focus on the removal of barriers, representation and valuing the contributions of individuals of a wide range of backgrounds, experiences, abilities and identities. Within this context, do equity, diversity and inclusion matter in sustainable energy research, and if so, as scholars, how do we improve in these areas? In providing advice, mainly to early career researchers, but to the established researchers too, I offer advice on creating and finding the culture and governance of EDI as meaningful practice in three steps: 1) find your people; 2) find or create spaces; 3) lean out and start

again.

Kinol, A., Miller, E., Axtell, H., Hirschfeld, I., Leggett, S., Si, Y., & Stephens, J. C. (2023)
Climate justice in higher education: a proposed paradigm shift towards a transformative role for colleges and universities.
Climatic Change, 176(2), 15.
Link

Moving beyond technocratic approaches to climate action, climate justice articulates a paradigm shift in how organizations think about their response to the climate crisis. This paper makes a conceptual contribution by exploring the potential of this paradigm shift in higher education. Through a commitment to advancing transformative climate justice, colleges and universities around the world could realign and redefine their priorities in teaching, research, and community engagement to shape a more just, stable, and healthy future. As inequitable climate vulnerabilities increase, higher education has multiple emerging opportunities to resist, reverse, and repair climate injustices and related socioeconomic and health disparities. Rather than continuing to perpetuate the concentration of wealth and power by promoting climate isolationism's narrow focus on technological innovation and by prioritizing the financial success of alumni and the institution, colleges and universities have an opportunity to leverage their unique role as powerful anchor institutions to demonstrate climate justice innovations and catalyze social change toward a more equitable, renewable-based future. This paper explores how higher education can advance societal transformation toward climate justice, by teaching climate engagement, supporting impactful justice-centered research, embracing non-extractive hiring and purchasing practices, and integrating community-engaged climate justice innovations across campus operations. Two climate justice frameworks, Green New Deal-type policies and energy democracy, provide structure for reviewing a breadth of proposed transformational climate justice initiatives in higher education.

Kok, K.P.W., van der Meij, M.G., Wagner, P., Cesuroglu, T., Broerse, J.E.W., & Regeer, B.J. (2023).
Exploring the practice of Labs for sustainable transformation: The challenge of 'creating impact'.
Journal of Cleaner Production, 135994.
Link

Scholars have argued that transdisciplinary experimentation processes in Labs which include societal stakeholders in research and innovation might help to create meaningful societal impact. At the same time, there is ample room to explore the practice of 'doing' Labs in relation to the transformative impacts that Labs aim to create. We present a case study of the FIT4FOOD2030 project (2017–2020) aimed at contributing to food system transformation in the EU through setting up 25 multi-stakeholder Labs. We aimed to gain insight into how transdisciplinary Labs with transformative ambitions try to create impact, and which challenges that brings along. For "capacitating change", Labs built agency by focusing on creating (1) new relations through network mobilization, network consolidation and network coordination; (2) new knowledge through knowledge sharing and social learning; and (3) new competences for Lab coordinators and engaged stakeholders. For "creating change" Labs focused on (1) transforming networks – the Lab as catalyst; (2) transforming practices – the Lab as concretizer; (3) transforming structures – the Lab as construction site; (4) transforming cultures - the Lab as critical mass. We observed complex (reciprocal) relations between processes of capacitating and creating change. Finally, we present intrinsic challenges in the practice of 'doing' Labs regarding the evaluation of single-Lab impacts, and the political dynamics of transformative Labs.

López Cifuentes, M., Penker, M., Kaufmann, L. *et al.* (2023)
Diverse types of knowledge on a plate: a multi-perspective and multi-method approach for the transformation of urban food systems towards sustainable diets.
Sustainability Science
Link

Urbanization processes are accompanied by growing global challenges for food systems. Urban actors are increasingly striving to address these challenges through a focus on sustainable diets. However, transforming food systems towards more sustainable diets is challenging and it is unclear what the local scope of action might be. Co-production of knowledge between science and non-science is particularly useful for analysing context-specific solutions and promise to result in more robust socio-economic, political and technical solutions. Thus, this paper aims to integrate different types and sources of knowledge to understand urban food systems transformation towards a more sustainable diet in Vienna; and, second, to analyse and reflect on the difficulties and ways forward to integrate diverse actors' perspectives, multiple methods and epistemologies. We created different future scenarios that illustrate the synergies and trade-offs of various bundles of measures and the interactions among single dimensions of sustainable diets. These scenarios show that there is plenty of scope for local action, but co-ordination across diverse groups, interests, and types of knowledge is necessary to overcome lock-ins.

McGowan, K. and Antadze, N. (2023)
Recognizing the dark side of sustainability transitions.
Journal of Environmental Studies and Sciences.
Link

Recent scholarship has revealed that sustainable transitions are not universally positive processes and may not have an equally beneficial impact for all. In this essay, we adopt the definition of *the dark side of transformations* offered by Blythe et al. (Antipode 50:1206–1223, 2018) to further explore this topic by revisiting our earlier paper—"Moral entrepreneurship: Thinking and acting at the landscape level to foster sustainability transitions"—which was published in *Environmental Innovation and Societal Transitions* in 2017. By critically reflecting on our own work, we want to caution against an insufficient examination of the dark side of sustainability transitions and highlight the need to grapple with and portray the multifaceted nature of past and present transition processes, particularly around the issues of racism and colonialism. The conversations about the dark side of sustainability transitions will help us avoid similar or different types of problems with injustice and inequality as we develop and implement future sustainable transitions.

Mignon, I. & Winberg, L. (2023)
The role of public energy advising in sustainability transitions – empirical evidence from Sweden.
Energy Policy, 177, 113525.

Public energy advising is a policy measure used to provide customized energy information and advice to energy end-users. It aims at encouraging and promoting decisions leading to reduced environmental impact from energy use. While the independent function of public energy advising is unique and important, in Sweden, the role of energy advisors is changing. With new and more complex client demands as well as increasing competition from other forms of advising, there is a need to examine the shift that public energy advising is facing. The aim is to provide an overview of the activities performed by public energy advisors in Sweden and to explore the roles that they play in the transition to a sustainable energy system. Based on a qualitative analysis of 129 activity reports from Swedish municipal energy advisors, this paper shows that public energy advisors do not only play a role on an actor-level, but also on a system-level, by undertaking activities connecting the target groups to other actors in society and translating national policy to the local level. These system-level roles represent an important potential for policies aimed at accelerating the energy transition, and thus they should be encouraged and maximized.

Marletto, G. and Sillig, C. (2023)
Global influence and national diversity in socio-technical transitions: a sectoral taxonomy
Crenos
Link

Socio-technical transitions (STTs) are used to analyse radical innovations and their extensive and structural impacts on the society. The spatial articulation of STTs is more and more studied to provide a deeper understanding of horizontal (i.e., between areas at the same scale) and vertical (i.e., between areas at different scales) dynamics. In particular, an increasing attention is given to the global scale. This paper contributes to the geography of STTs, by studying the connections between the global and the national scale and by aiming at filling two research gaps: the inadequate consideration of both national diversity and sectoral specificities. Starting from five case studies on agrifood, healthcare, logistics, urban mobility and tourism, we build a sectoral taxonomy of STTs focussed on the relation between global influence and national diversity. The taxonomy may be used: a) to represent sectors other than those studied here (e.g., defense, education, energy, internal security, justice, media/ entertainment, water, Web/TLC), b) for dynamic analyses, i.e. to study the eventual migration of sectors between Types, and c) to provide useful hints for the design and implementation of policies aiming at pushing STTs in a desired direction.

Morseletto, P. (2023)
Sometimes linear, sometimes circular: States of the economy and transitions to the future.
Journal of Cleaner Production, 136138
Link

Nuñez-Jimenez, A., Mehta, P. and Griego, D., (2023)
Let it grow: How community solar policy can increase PV adoption in cities.
Energy Policy, 175, p.113477.
Link

Decarbonizing urban energy consumption is critical for addressing climate change, yet renewable power installations in cities are rare due to limited space and economic unattractiveness. Community solar, where multiple electricity users share the electricity generated by their rooftop PV systems, could help overcome these barriers and accelerate PV adoption in cities. Using an

agent-based model, we simulated the decision-making of nearly 5000 building owners in a city district in Zurich, Switzerland, and assessed three locally relevant policy scenarios: no community solar, community solar with adjacent buildings, and community solar with buildings within a 100-meter radius. The results show that allowing community solar with adjacent buildings increases the installed PV capacity in 2035 by 1%, as greater economies of scale and higher self-consumption make PV adoption more economically attractive. A more permissive policy, allowing community solar with buildings within a 100-meter radius, provides more opportunities for communities to grow over time, resulting in 21% more PV installed capacity in 2035 than without community solar. These findings demonstrate the potential of community solar to accelerate PV adoption in cities and underscore the significant role of policy design in achieving this goal.

Ohlendorf, N., Löhr, M. & Markard, J. (2023)
Actors in multi-sector transitions - discourse analysis on hydrogen in Germany
Link

With net-zero emission goals, low-carbon transitions enter a new phase of development, leading to new challenges for policymaking and research. Multiple transitions unfold in parallel across different sectors. This involves a broad range of technologies, while actors engage in increasingly complex discourses. Here, we study the discourses on hydrogen in Germany. Based on the analysis of 179 newspaper articles from 2016 to 2020, we find that a diverse set of actors, including many industry incumbents, speak favorably about hydrogen, emphasizing economic opportunities and its relevance for the energy transition, whereas skeptics highlight its low energy efficiency and expected scarcity. With the help of discourse network analysis, we identify three emerging conflicts around the use, production, and import of hydrogen. We explain these conflicts and the widespread support of incumbents with a conceptual framework that captures the complex interplay of sectoral contexts, specific technologies and actor interests.

Rogge, K. S., Stadler, M., de Geus, T., Hielscher, S., Wittmayer, J., Broich, A., Kotler, A., Mischkowski, N., Stasik, A., Ranville, A., & Vernay, A.-L. (2023).
Fit for social innovation? Policy reflections for EU energy and climate policy making.
Oxford Open Energy, 2 (January), 1–9.
Link

Achieving climate-neutrality by mid-century and its intermediary reduction targets for 2030, notably the EU's greenhouse gas emissions reduction of 55% by 2030, requires an accelerated transformation of our systems of production and consumption. In essence, such transformations are socio-technical change processes that require a combination of technological and social innovation. While it is widely acknowledged that ambitious climate and energy policies are needed to accelerate such transition processes, research and practise have largely focused on their importance for spurring technological innovation. In this research perspective, we argue that energy and climate policy making should pay more attention to social innovation as much needed additional puzzle piece for successful decarbonisation. Such social innovation is diverse, ranging from renewable energy cooperatives, to participatory incubation and experimentation, and crowdfunding as well as local electricity exchange. Based on a literature review that informed an EU policy dialogue bringing together policy makers, practitioners and researchers and followed up by a workshop with city administrations, twelve practical action points were co-created on how to better consider social innovation in energy and climate policy making in the EU (and beyond). We thereby hope to stimulate a broader discourse on the dual need for social and technological innovation for reaching climate-neutrality.

Saleh, R., & Brem, A. (2023)
Creativity for sustainability: An integrative literature review.
Journal of Cleaner Production, 135848.
Link

How can creativity foster sustainability? This is a recently emerging question that sees current approaches to sustainability solutions as lacking the use of creativity. Creativity is thus seen as an aspiration to re-create and discover new paths to accelerate the transitions towards sustainability. We apply an integrative review of the creativity for sustainability literature with an in-depth analysis of 86 journal articles. In addition, we draw on insights from innovation and business studies and from the social sciences on sustainability transitions. The findings indicate four levels of creativity for sustainability including the individual, community, organizational, and institutional levels. On each of these levels, a set of indicators has been identified.

Svare, H., Gjefsen, M.D., den Boer, A.C.L., & Kok, K.P.W. (2023).
Learning systems and learning paths in sustainability transitions.
Ecology and Society, *28*(1).
Link

Scholars have stressed the need to better understand the role of learning in sustainability transitions. Even though progress has been made, there is a call for more research, both in the form

of large-scale empirical studies and theoretical clarity. Based on pragmatic learning theory, this paper responds to this call by presenting the results of an empirical study on learning within the context of a European large-scale multi-level transition-oriented sustainability project. Following the empirical analysis of the learning in this project, the concept of a learning system is proposed as a theoretical innovation, and the question of how to most effectively facilitate learning in sustainability transitions is rephrased as how such a learning system is best designed. Moreover, the term "learning path" is introduced to describe how individuals or groups maneuver within a learning system. We argue that to understand this maneuvering, the focus needs to be directed at the perceived learning needs of the actors relative to the challenges they are experiencing. Finally, the article discusses how to improve learning in sustainability transition projects and points to the potential value of using the concepts of learning systems and learning paths in doing so.

Yap, X.-S., Heiberg, J., Truffer, B. (2023)
The emerging global socio-technical regime for tackling space debris: A discourse network analysis.
Acta Astronautica.
Link

The global space sector has to increasingly consider sustainability concerns in the orbit, given the rising challenge of space debris. In which direction the management of space debris will develop in terms of technological solutions, policies, and actor strategies remains still unclear. This paper applies the concept of 'global socio-technical regimes' to better understand how actors in the global space sector frame, conceive, and legitimize the space debris problem. More specifically, we apply a discourse network analysis method – sociotechnical configuration analysis – to identify and map different value orientations by core actors over the last fifteen years. This analysis reveals three development stages in the discourse: a problem identification period (2007–2011), followed by the rise of national interests amidst increasing promises of space-based infrastructures (2012–2015), and finally, the emergence of a global socio-technical regime that increasingly connects space sustainability with Earth-bound sustainability (2016–2019). Based on our analysis, we expect that ensuring future earth-space sustainability will include a broader mix of challenges. Future approaches to space debris management will have to consider a broader and clearer problem framing to help inform effective policy making.

Zepa, I., & Hoffmann, V. H. (2023).
Policy mixes across vertical levels of governance in the EU: The case of the sustainable energy transition in Latvia.
Environmental Innovation and Societal Transitions, 47, 100699.
Link

The European Green Deal requires policy alignment horizontally across policy areas but also vertically across governance levels. Accordingly, the diversity of actors and their preferences can hinder sociotechnical transitions. We, therefore, ask: How do policy mixes unfold across vertical scales of governance in sociotechnical transitions? We analyse vertical policy mix characteristics, considering consistency, coherence, comprehensiveness, and credibility, and the inherent feedback loops between politics and policy. Drawing on empirical evidence from Latvia, gathered through content analysis and interviews with senior stakeholders, we highlight two key findings: First, friction points in policy coherence between the national-local governance levels feed back into the vertical policy mix, as EU-level policy strategies are not substantiated with corresponding policy instruments. Second, the lack of political commitment to the transition at the national level perpetuates friction points in comprehensiveness and credibility of the vertical policy mix, hindering transition processes.