STRN Newsletter

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STRN Sustainability Transitions Research Network

Newsletter 43 – March 2022

Content

Special

About

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

Cover picture: Shutterstock

Editorial

by Bernhard Truffer

(with contributions from the EIST editorial team: Harald Rohracher, Paula Kivimaa, Rob Raven, Floor Alkemade, Luis Carvalho, Giuseppe Feola)

The journal EIST had its tenths anniversary of being an important place for the germination, rooting and flourishing of the transitions research field as a whole. The anniversary was celebrated with a collection of viewpoints edited by the outgoing Editor-in-Chief, Jeroen van den Bergh, in Volume 41. Since August 2021, a new editorial team started, with me as the new Editor-in-Chief and three sitting associate editors Harald Rohracher (Linköping University), Paula Kivimaa (Syke, Finland) and Rob Raven (Monash, Melbourne). Given the increasing volume and diversity of submissions, we expanded the editorial team and invited three younger editors: Floor Alkemade (TU Eindhoven), Luis Carvalho (University of Porto) and Giuseppe Feola (Utrecht University).

While we are all very happy with the past development of EIST, we also observe a broadening of the topics, methods and conceptual approaches. The current Volume 42 therefore contains an editorial strategy paper, which elaborates on how the journal's publications developed since 2011 and how we set our editorial priorities. In a nutshell, we observe a deepening of established transitions research topics in a number of key thematic areas (e.g. energy, transport, water, urban transitions). But at the same time, there is increasing activity at the boundaries, with strong conceptual contributions from fields like political sciences, sociology, geography, management studies and also "critical perspectives". These are likely to further inspire and shape the field in the future and we therefore want to strengthen the journal's role as a platform for such interdisciplinary dialogue.

One measure to implement this ambition was to redefine or at least refocus some of our established paper formats. For instance, we receive an increasing number of "review papers", which often do not go beyond providing a simple summary of automated literature searches. We believe that review papers can be very useful for consolidating a field and for providing guidance to newcomers. However, this requires deep conceptual reflections, which we often missed in respective submissions. We therefore updated the profile for review papers and also defined a specific review process.

As a new format, we introduced “perspective articles”, which should function as an “early detection device” for upcoming conceptual, empirical and methodological topics before they could be solidly presented in a full-scale research paper. Perspectives are meant to be a substitute for the discontinued format of viewpoints, which we found increasingly difficult to handle. Perspectives in particular, may be longer than viewpoints (4’000 words) and will go through a special review process. A first two exemplary perspectives will be published in the upcoming volume. Finally, we encourage the submission of policy briefs, which have been rather sparse in the past.

With these new ideas and ambitions, the editorial team hopes to strengthen EIST as a high-quality publication platform that will support intellectual productivity and originality in the transitions field. Of course, the editorial team is not able to do much more than good housekeeping. We depend on you as authors submitting your best research to EIST, and as reviewers to maintain the high quality of the published manuscripts.

EIST Journal

We are happy to introduce the most recent issue of EIST with a high number of truly excellent contributions that cover the full range of established but also upcoming topics such as the role of finance or just transitions, to just name two.

Please find the 30 papers published in Volume 42 in the publication section below.

Bernhard Truffer
Editor-in-Chief EIST
EIST

STRN Events

13th IST Conference, November 21-25, 2022 Stellenbosch, Melbourne, Washington D.C.

With this call for papers, we invite contributions from the global research community for the 13th annual conference on sustainability transitions. This year's conference theme will focus on conceptualising, comparing and evaluating sustainability transitions across places and scales, thereby highlighting the intellectual, methodological and policy challenges of understanding and governing sustainable and just transitions in diverse contexts.

The IST conference will take place in the week after the UNFCCC COP 27 in Egypt and provides an opportune moment to reflect on sustainability transitions research questions.

For its 2022 conference, STRN is exploring a new model that involves a partnership between three universities (Stellenbosch University, Monash University and Georgetown University) on three different continents (Africa, Australia and North America). This year, the three organizers will partner to create a week with a truly global experience that involves both online and in-person activities, in which conference participants will virtually travel through three different time zones and continents, with the opportunity to also meet in person.
Why a new conference model? International conferences are an important part of networking, knowledge development and exchange. COVID has disrupted this model and has forced past IST conferences to go online. This limits the possibilities of face-to-face exchange, which is especially important for early-career researchers. At the same time, conferences are a major source of carbon emissions in academic communities due to international air travel. Traditional conferences also create challenges for those with different physical abilities or care responsibilities or financial and other travel constraints.

Rethinking the way conferences are organised can overcome COVID-related challenges in the shorter-term and allow experimentation with low-carbon and just academic conferences for the longer term, all while maintaining the benefits of face-to-face exchange and network building.

Conference organisation is led by:
Prof. Mark Swilling (Stellenbosch University, Georgetown University), Prof. Rob Raven (Monash University), Prof. Gaël Giraud (Georgetown University)

The conference website will be online soon.

For all inquiries, contact
ist2022global@gmail.com

STRN / NEST Method School, Eindhoven, June 6-10, 2022

The 2022 STRN/NEST School on Methodologies and Methods for Sustainability Transitions Research will take place on the campus of Eindhoven University of Technology from June 6-10, 2022. The school will start in the evening of June 6 and ends around noon on June 10.

Participants will take part in a series of lectures, workshops and discussions organised by leading transitions scholars, accompanied by a social programme. The planned total workload for the school will be approximately 80 hours, including preparation and attendance and participants will receive a participation certificate for the school. The focus of this year's school will be on combing qualitative and quantitative methods and mixed methods approaches.

Confirmed speakers for the PhD School include:
- Saurabh Arora (University of Sussex)
- Lea Fünfschilling (Lund University)
- Frank Geels (University of Manchester)
- Jonathan Köhler (Fraunhofer ISI)
- Bonno Pel (Université libre de Bruxelles)
- Bernhard Truffer (Eawag/Utrecht University)

- Evelina Trutnevyte (University of Geneva)
- Julia Wittmayer (Drift, Erasmus University Rotterdam)
- Floor Alkemade (Eindhoven University of Technology)

The call for applications is closed.
For any inquiries contact f.alkemade@tue.nl or Jonathan.Koehler@isi.fraunhofer.de

NEST webinar series

The NEST webinar series on sustainability transitions continues also in 2022 with various exciting sessions:

• **31 March** - 10:30 CEST: Saurabh Arora on Decolonizing Sustainability Transitions
• **12 April** - 16:00 CEST: Katrien Van Poeck on Learning in Transitions
• **16 May** - 14:00 CEST: Benjamin Sovacool on Accelerating Energy and Low-Carbon Transitions

In the webinar series, we aim to give early career researchers the opportunity to learn about core concepts in the field, and facilitate the dialogue between them and established researchers. Invitations for upcoming webinars are send through the STRN mailing list, and can be found on the NEST website.

For questions don't hesitate to reach out to Abe Hendriks.
Missed any of the previous 17 webinars? The recordings are all available on our Youtube Channel.

7th NEST Conference, Lyon, May 5-6, 2022

The 7th NEST Conference will take place in Lyon, France, under the theme *"Global Sustainability Transitions: Towards Collaboration among Early Career Researchers"*.

The conference will be organized in a hybrid format. The call for abstracts is closed now.
For any inquiries contact:
nestconference2022@gmail.com.

Other Events

Eu-SPRI Early Career Research Conference (ECC) on Social Innovation, 21 - 23 September 2022 in Dortmund / Germany

This Early Career Conference addresses the guiding theme "Social Innovation Policy: Concepts, Methods and Policy Practices". With this event we want to continue the interaction between the STRN community and the EU-SPRI community.

We invite contributions to a wide set of areas and encourage ia topics particularly close to this interface, such as social innovation and transformation or interactions between social innovation policies from different policy fields (environment, energy) and STI.

The call for papers is open now (Deadline 1 May 2022).
For further information see: conference website

CfP for the "International Workshop on Household Innovation and Agency in Sustainability Transitions" (Prato, Italy, Oct 26-28, 2022)

Monash University in collaboration with the University of Göthenburg is hosting an international workshop that will bring together interdisciplinary perspectives on household innovation and agency in sustainability transitions. Households are substantial sites of resource use and are routinely targeted as policy subjects and as consumers by sustainability initiatives. But households are also sites of tinkering and innovation, where new technologies, services, behaviours, practices, skills, knowledge and norms are embedded, reconfigured and transformed.

We invite contributions from across the sustainability transitions community and the broader social sciences, such as: human geography; Science and Technology Studies; household sociology; ecological economics; and Behavioural Change, to improve and broaden theorisations, methodological considerations and empirical explorations of households in transitions.

The deadline for submitting abstracts is May 1. More information can be found here. For any workshop inquiries, please contact Mae Wee.

Special section

Academic publishing – Quo vadis? Summary of a Dialogue session at IST 2021

Binz, Christian; Brisbois, Marie Claire; Hendriks, Abe; Mininni, Giulia

In the past years, the STRN community has begun discussing the sub-standard editorial policies that increasingly proliferate in journals and academic publishing houses (e.g. discussion on MDPI in prior STRN newsletters). At IST 2021, we organized a dialogue session to explore the broader issues that exist in the current academic publishing regime and to discuss ways in which it might be structurally transformed.

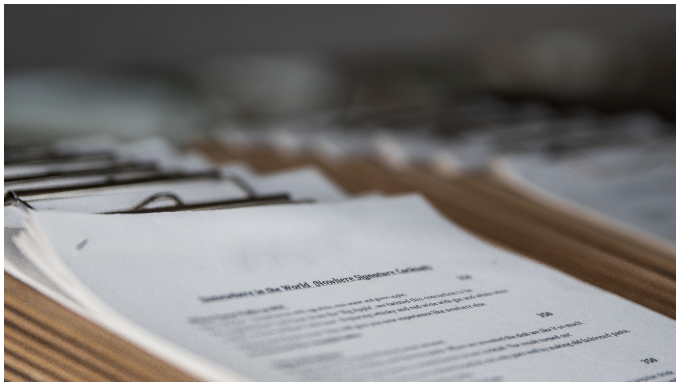
The discussion highlighted key issues both with the conventional publishing system, as well as with new business models emerging in the Open Access (OA) space. As pressures to publish increase globally, conventional publishing houses are struggling with the increasing number of submissions and the resulting additional workload on editorial boards and reviewers, which makes the average quality of reviews deteriorate. At the same time, large publishing houses still reap exorbitant profits and employ business models that turn taxpayer-funded work by authors, reviewers and editors into private returns. The session also revealed how the current system limits the participation of various groups of academics, including early career scholars and those in the Global South. A lack of diversity in editorial boards is a common issue, even in journals that publish research focusing on the Global South.

Many hopes have initially been connected with the rise of OA publishing, which promises free access to academic research for those who cannot afford journal subscription fees. Yet, the discussion in the session revealed key structural problems with OA publishing, too. E.g. high publication fees make access to OA publishing less equitable than it seems, and predatory and profit-driven business models reportedly proliferate also with OA publishers. The high-speed and low-quality peer review policies by MDPI and other OA publishers were furthermore seen as a potential threat to academia as a whole.

In the session, four potential transitions scenarios for the academic publishing system were discussed in depth: 1) Incremental change to the incumbent regime, 2) OA publishing '2.0', which upholds high editorial quality standards, 3) a shift to more research community-run journals, 4) Establishing open publishing platforms funded by donors / the EU / tax payers.

In scenario 1, conventional publishing houses retain a dominant role, but their journals gradually embrace more OA publications with lower fees and more inclusive editorial policies. Long-term persistence of the old system was evaluated as quite likely in the discussion, as existing publishers hold the necessary negotiating power and financial resources to maintain the current system of "rent extraction", while adapting to external pressures only gradually.

In scenario 2, OA publishers take over the lion's share of publications, but with alternative business models that guarantee high academic quality standards. Recent evidence however seems to suggest that the most rapidly expanding OA publishers rather favor quantity and speed over quality, due to an underlying business model that sees every article not published as lost revenue.



In Scenario 3, academic publishing would shift away from professional publishing houses toward research communities (e.g. STRN) that run their own journals (see e.g. Academy of Management Journals, Ecology and Society, Revista de Gestao, etc.). That model was evaluated quite positively in the discussion, though many cautioned that the real costs of running a journal should not be underestimated, including labor costs for editorial and review processes, listing with global publication databases, running a secretariat, licensing editorial software, etc.

Scenario 4 supposes that (a consortium of) large Science Foundations or e.g. the EU establish new open publishing platforms, where all research can be published OA with minor publication fees and without any profit motives. Quality assurance remains an open issue with this model, though, and there is potential for new biases to emerge if state-based platforms cannot be fully shielded from policy influences (e.g. in non-democratic countries). In addition, if country-based funds are used, the current global South/North publishing divide could even be worsened in this scenario.

Finally, the discussion of these scenarios also revealed a number of pathways forward. Collectively agitating against the business models of incumbent publishers, as

well as new OA publishers with sub-standard editorial policies, is one important form of agency. Developing novel quality labels, indexing platforms or alternative 'impact factors' could be another promising way of challenging incumbent power structures. In particular, we discussed whether a community-based 'editorial quality label' could be developed by STRN, at least for the journals where we publish most regularly. Using our inherent agency by simply publishing less is a third route of action, which is however not feasible for early career scholars.

The potentially most transformative route overall appeared to be exploring the creation of a community-run boutique journal under the auspices of STRN, with funding from major universities, funders, the EU, or other donors. Developing such an (experimental, niche) project would have the potential to challenge both the incumbent regime and emerging sub-standard OA proto-regime. A first step in this direction would be gathering a group of scholars who want to explore this avenue. We also plan to follow up with a more elaborate viewpoint article on these new dynamics in the academic publishing system soon.

Publications

PhD Theses

Ampe, K. (2022)
Troubled wastewaters: the politics of transitions to a circular economy.
Delft University of Technology and Ghent University
link

Against the backdrop of persistent environmental problems and rigid, unsustainable socio-technical systems, innovative activities are being developed to enable a shift towards a circular economy. However, as such shifts are highly political, these activities typically result in inertia or, at most, incremental changes. Therefore, this thesis investigates the political processes underlying inertia and incremental change in established systems, analysing the power of deep-rooted ideas, entrenched networks, embedded rules and vast infrastructure that hinder fundamental change. To do so, it focusses on the wastewater systems of Belgium and the Netherlands. Here new activities are being developed because of the need for rapid shifts to a circular economy, whilst the systems are characterised by large, stable infrastructures and robust institutional arrangements. After an introductory chapter on wastewater, circular economy and the politics of transitions and a second chapter on the interpretive methodology, chapter 3 analyses the struggles between three discourses and with lock-ins in the transition to a circular economy. Chapter 4 then provides a nuanced understanding of incremental steps towards a circular economy by analysing power struggles in policy feedback processes. By applying a power framework to a case study of a path-breaking wastewater project, chapter 5 focusses on incumbents' enabling role in niche-innovation. The conclusion first provides useful indications for understanding the slow progress in achieving long-term sustainability objectives in socio-technical systems characterised by large infrastructure and entrenched institutional arrangements, and then describes a reflexive and transdisciplinary approach as a potential way forward.

Books

Bolton, R. (2022)
Making Energy Markets: The Origins of Electricity Liberalisation in Europe.
Palgrave Macmillan
link

Making Energy Markets charts the emergence and early evolution of electricity markets in western Europe, covering the decade from the late 1980s to the late 1990s. Liberalising electricity marked a radical deviation from the established paradigm of state-controlled electricity systems which had become established across Europe after the Second World War. By studying early liberalisation processes in Britain and the Nordic region, and analysing the role of the EEC, the book shows that the creation of electricity markets involved political decisions about the feasibility and desirability of introducing competition into electricity supply industries. Competition introduced risks, so in designing the process politicians needed to evaluate who the likely winners and losers might be and the degree to which competition would impact key national industries reliant on cross-subsidies from the electricity sector, in particular coal mining, nuclear power and energy intensive production. The book discusses how an understanding of the origins of electricity markets and their political character can inform contemporary debates about renewables and low carbon energy transitions.

Bulkeley, H., Stripple, J., Nilsson, L. J., van Veelen, B., Kalfagianni, A., Bauer, F. and van Sluisveld, M. (2022)
Decarbonising Economies.
Cambridge University Press.
link

Based on an interdisciplinary investigation of future visions, scenarios, and case-studies of low carbon innovation taking place across economic domains, Decarbonising Economies analyses the ways in which questions of agency, power, geography and materiality shape the conditions of possibility for a low carbon future. It explores how and why the challenge of changing our economies are variously ascribed to a lack of finance, a lack of technology, a lack of policy and a lack of public engagement, and shows how the realities constraining change are more fundamentally tied to the inertia of our existing high carbon society and limited visions for what a future low carbon world might become. Through showcasing the first seeds of innovation seeking to enable transformative change, Decarbonising Economies will also chart a course for future research and policy action towards our climate goals.

Nuñez-Jimenez, A. and De Blasio, N. (2022)
The Future of Renewable Hydrogen in the European Union: Market and Geopolitical Implications.
Belfer Center for Science and International Affairs, Harvard Kennedy School
link

As countries around the world pledge to remove nearly all carbon emissions from their economies within the next forty years, the spotlight has moved to the deep decarbonization of all energy sectors and sparked renewed interest in hydrogen. While hydrogen has been a staple in the energy and chemical industries for decades, renewable hydrogen is now enjoying unprecedented political and business momentum as a versatile and sustainable energy carrier that could be the missing piece in the carbon-free energy puzzle. The transformational effort for scaling up renewable hydrogen will require close coordination between policy, technology, capital, and society to avoid falling into the traps and inefficiencies of the past. This report focuses on the market and geopolitical implications of renewable hydrogen adoption at scale in the European Union (EU) and presents long-term strategies based on three reference scenarios. Each scenario focuses on one key strategic variable: energy independence, cost (optimization), or energy security. Our analysis investigates the viability, cost-competitiveness, and trade and investment requirements of each scenario through a detailed techno-economic and optimization modelling. The results show that only by working together can the EU become a global leader in clean hydrogen innovation and simultaneously contribute to the EU's climate and energy security goals, a more robust economy, and a more integrated union.

Bernhard Truffer, Harald Rohracher, Paula Kivimaa, Rob Raven, Floor Alkemade, Luis Carvalho, Giuseppe Feola
A perspective on the future of sustainability transitions research
link

Annika Lonkila, Minna Kaljonen
Ontological struggle over new product category: Transition potential of meat alternatives
link

Viktor Werner, Alexander Flaig, Thomas Magnusson, Mikael Ottosson
Using dynamic capabilities to shape markets for alternative technologies: A comparative case study of automotive incumbents
link

Aleid C. Groenewoudt, Henny A. Romijn
Limits of the corporate-led market approach to off-grid energy access: A review
link

Sara Holmgren, Alexandru Giurca, Johanna Johansson, Christoffer Söderlund Kanarp, Tove Stenius, Klara Fischer
Whose transformation is this? Unpacking the 'apparatus of capture' in Sweden's bioeconomy
link

Sandrine Allain, Jean-François Ruault, Marc Moraine, Sophie Madelrieux
The 'bioeconomics vs bioeconomy' debate: Beyond criticism, advancing research fronts
link

Rebecca Pearson, Douglas K. Bardsley
Applying complex adaptive systems and risk society theory to understand energy transitions
link

Barbara Koole
Veganism and plant-based protein crops: Contentious visioning almost obstructing a transition
link

Jussi Valta, Saku J. Mäkinen, Johanna Kirjavainen
Dialectic tensions driving niche creation – A

case study of a local energy system
link

Giulia M. Mininni
The Barefoot College 'eco-village' approach to women's entrepreneurship in energy
link

Jordi Peris-Blanes, Sergio Segura-Calero, Nancy Sarabia, David Ribó-Pérez
The role of place in shaping urban transformative capacity. The case of València (Spain)
link

Thomas Bauwens, Taneli Vaskelainen, Koen Frenken
Conceptualising institutional complexity in the upscaling of community enterprises: Lessons from renewable energy and carsharing
link

Wouter P.C. Boon, Jakob Edler, Douglas K.R. Robinson
Conceptualizing market formation for transformative policy
link

Paula Maria Bögel, Karoline Augenstein, Meike Levin-Keitel, Paul Upham
An interdisciplinary perspective on scaling in transitions: Connecting actors and space
link

S. Hyysalo, E. Heiskanen, J. Lukkarinen, K. Matschoss, M. Jalas, P. Kivimaa, J.K. Juntunen, F. Moilanen, P. Murto, E. Primmer
Market intermediation and its embeddedness – Lessons from the Finnish energy transition
link

Tessa de Geus, Julia M. Wittmayer, Fenna Vogelzang
Biting the bullet: Addressing the democratic legitimacy of transition management
link

Björn Nykvist, Aaron Maltais
Too risky – The role of finance as a driver of sustainability transitions
link

Tatiana Nevzorova
Functional analysis of technological innovation system with inclusion of sectoral and spatial perspectives: The case of the biogas industry in Russia
link

Meike Löhr, Camilla Chlebna, Jannika Mattes
From institutional work to transition work: Actors creating, maintaining and disrupting transition processes
link

Robert Groß, Jan Streeck, Nelo Magalhães, Fridolin Krausmann, Helmut Haberl, Dominik Wiedenhofer
How the European recovery program (ERP) drove France's petroleum dependency, 1948–1975
link

Paris Hadfield, Lars Coenen
Contemporary financial capitalism and sustainability transitions in urban built environments
link

Timothy Fraser, Mary Bancroft, Andrew Small, Lily Cunningham
Leaders or networkers? The role of mayors in renewable energy transition
link

Shanil Samarakoon, Paul Munro, Collen Zalengera, Matthew Kearnes
The afterlives of off-grid solar: The dynamics of repair and e-waste in Malawi
link

Stine Hach Juul Madsen
A constructivist approach to the spatial organization of transformative innovation policy
link

Andre Nijhof, Alice Wins, Aikaterini Argyrou, Nicolas Chevrollier
Sustainable market transformation: A refined framework for analyzing causal loops in transitions to sustainability
link

Annelli Janssen, PJ Beers, Barbara van Mierlo
Identity in sustainability transitions: The crucial

role of landscape in the Green Heart
link

Harm A.R.M. van den Heiligenberg, Gaston J. Heimeriks, Marko P. Hekkert, Rob P.J.M. Raven,
Pathways and harbours for the translocal diffusion of sustainability innovations in Europe
link

Adolfo Mejía Montero, Rebecca Ford
Skills deployment for a 'just' net zero energy transition
link

Jonas Heiberg, Bernhard Truffer
Overcoming the harmony fallacy: How values shape the course of innovation systems
link

Koen Beumer, Harro Maat, Dominic Glover
It's not the market, stupid: On the importance of non-market economies in sustainability transitions
link

Kathryn Lucas-Healey, Björn C.P. Sturmberg, Hedda Ransan-Cooper, Laura Jones
Examining the vehicle-to-grid niche in Australia through the lens of a trial project
link

Papers

Bobrova, Y., Papachristos, G. and Chiu, L.F. (2021)
Homeowner low carbon retrofits: Implications for future UK policy.
Energy Policy 155, 112344
link

The promotion of low-carbon home retrofit among UK homeowners is widely recognised as an important strategy to reduce operational energy use in dwellings and mitigate climate change. The related predominant UK policy approach is to address various market failures and develop the market for low-carbon retrofit and innovation. The current low uptake rate of low-carbon home retrofit suggests that a complementary policy approach is necessary to increase it and support households in their change towards low-carbon living. This paper uses an innovation framework to analyse retrofit as an innovation-decision process of several stages. Low-carbon technology is conceptualised at three nested levels: product, design option and technological system. A multiple-case study approach is used to analyse eight home retrofit cases from the SuperHomes network, that achieved significant carbon emission reductions through retrofit activities. Case analysis shows that: (i) homeowners collect information for each technology level through different communication channels, which are not interchangeable; (ii) homeowners develop a certain capacity to transform their environmental concerns into substantial retrofit activities; (iii) the positive retrofit experience of homeowners is crucial to develop such capacity and to convince others to retrofit their homes. These findings have important implications for energy policy on retrofit uptake in UK to support household transition to low-carbon living.

Bobrova, Y., Papachristos, G. and Cooper, A. (2022)
Process perspective on homeowner energy retrofits: A qualitative metasynthesis.
Energy Policy 160, 112669.
link

EU policy recognises the importance of encouraging low-carbon retrofit among homeowners to reduce operational energy use in dwellings and mitigate climate change. Building research and policy has traditionally focused on the identification of retrofit drivers and barriers, to strengthen the former and reduce the later. However valuable the static juxtaposition of drivers and barriers may be, it cannot capture their temporal dynamics during a retrofit process. Recent research emphasises repeatedly that retrofits should be understood as dynamic processes that unfold over extended periods of time. This paper presents a

metasynthesis of qualitative case studies on energy retrofit in single-family owner-occupied dwellings. A process perspective is used to capture the dynamics between socio-technical aspects of the built environment that shape retrofit depth and energy use post-retrofit. Metasynthesis results show that: (i) prior homeowner knowledge about energy retrofit plays a significant role on the depth of a technological solution achieved during the retrofit; (ii) the actual energy use post-retrofit depends on the extent of owners' involvement in the development of their retrofit design solutions. These findings have important implications for EU energy policy uptake in support of the household transition to low-carbon living.

Boons, F., Doherty, B., Köhler, J., Papachristos, G. and Wells, P. (2021)
Disrupting transitions: qualitatively modelling the impact of Covid-19 on UK food and mobility provision.
Environmental Innovation and Societal Transitions 40, 1-19
link

The 2020 Covid-19 pandemic provides an empirical testing ground for assessing the impact of critical events on societal transitions. Such events are typically seen as exogenous to the transition process, an assumption which is investigated in this paper. Using a qualitative system dynamics modelling approach we conceptualize transition pathways as sets of interacting sequences of events. This enables the analysis of event sequences that constitute the evolving pandemic as impacting on those pathways. We apply this approach to the provision of (auto)mobility and food in the UK. This shows the way in which the pandemic has had a differential effect on ongoing transitions in both systems, sometimes slowing them down, and sometimes accelerating them. In addition, it reveals how it has established new transition pathways. The empirical work further shows how qualitative modelling with system dynamics facilitates an explicit and systematic comparative analysis of transition case studies.

Boulet, M., Grant, W., Hoek, A. And Raven, R. P. J. M., (2022)
Influencing across multiple levels: The positive effect of a school-based intervention on food waste and household behaviours.
Journal of Environmental Management, 308, 114681
link

Changing consumer food waste-related behaviours is critical to meeting global targets of halving food loss and waste. This paper presents a food waste reduction intervention trialled in five Australian schools and explores its influence on food provisioning practices, changed behaviours and food waste. Consisting of a mix of educational, skills-based, and whole-of-school-events, the intervention sought to reduce food waste by encouraging students to be more involved at home in choosing and/or preparing food to take to school. Students reported greater involvement in the target behaviours and there was a reduction in avoidable food waste in participating schools. Utilising a multi-level perspective, this study demonstrates how food-related practices and behaviours emerge from the interactions of macro and meso-level factors and highlights the value of this perspective when designing food waste reduction interventions.

Bunders, D. J., Arets, M., Frenken, K. and De Moor, T. (2022)
The feasibility of platform cooperatives in the gig economy.
Journal of Co-operative Organization and Management, 10(1), 100167
link

In view of the precarity and economic dependency of gig workers, platform cooperatives come into the picture as alternatives to investor-owned platforms. We develop a taxonomy of platform cooperatives along the dimensions of ownership of the platform and employment by the cooperative. Platform cooperatives are then examined as worker-run matchmaking platforms for gigs, by analysing their challenges, highlighting the difficulties to raise capital, take collective decisions, and gain institutional support. On the basis of a feasibility analysis, we conclude that the identified challenges can most likely be successfully overcome by platform co-ops that organise taxi rides and professional jobs, while it may prove much more difficult in food delivery, homecare and micro-tasking.

Corais, F., Bandeira, M., Silva, C., Braganca, L. (2022)
Between the Unstoppable and the Feasible: The Lucid Pragmatism of Transition Processes for Sustainable Urban Mobility: A Literature Review
Future Transp, 2(1), 86-114
link

This article presents a literature review of Transition Experiments applied to the Sustainable Urban Mobility context from a critical and operative point of view. The moment of transformation that we are living through determines concerns about the decarbonization and compliance with the 2050 Targets and imposes a paradigm shift towards sustainable urban mobility. In this regard, the necessary physical change will have to be accompanied by a socio–cultural transition, of which

the challenge implies the construction of a collective ideal, shared by the population and the main stakeholders, leading to the opening of new political spaces and a change, also in terms of governance.

Craens, J., Frenken, K. and Meelen, T. (2021)
Mission-oriented innovation policy: The case of the Swedish 'Vision Zero' approach to traffic safety.
Papers in Evolutionary Economic Geography, 21.40
link

There is an increasing consensus among policy makers and academics that Mission-oriented Innovation Policy is needed to tackle the grand societal challenges of our time. However, there is little experience in actually carrying out this new type of policy. In this light, we investigate Sweden's ambitious traffic safety policy known as 'Vision Zero'. We consider this policy as a mission-oriented innovation policy towards a societal challenge, as it started from the articulation of a bold, societal goal (zero traffic deaths), fostered multiple types of innovations (technological infrastructural, regulatory), and involved a variety of actors (public, private and professional organizations). We explain what the Vision Zero policy entails, how stakeholders dealt with 'transformational failures', and what made the policy a success. We end with lessons for the development of new mission-oriented innovation policies to address societal challenges

Costa, E., Wells, P., Wang, L. and Costa, G. (2022)
The electric vehicle and renewable energy: Changes in boundary conditions that enhance business model innovations.
Journal of Cleaner Production, 333, 130034
link

Business model innovation consists of new ways of defining, creating, and capturing value including non-monetary value, and is an indicator of crossing traditional sector boundaries, thereby providing the necessary agency to achieve significant new market opportunities around technological innovation. Individual businesses may lack the scope or depth of competencies required, especially in the case of entrenched industrial structures, framings, regulatory provision, and consumer attitudes. Business models are thus potentially ossified within highly structured socio-technical systems. This article analyses innovation in business models arising from the confluence of two mature and stable industries under conditions of external pressure, deregulation, privatisation, and the emergence of a new, shared interest. We illustrate the paper with examples of vehicle manufacturers developing business concepts for vehicle-to-grid, domestic energy, second life, and industrial electricity provision from renewable energy. We find that in the period 2012 to 2020, 17 vehicle manufacturers used 38 electric models to test a diverse menu of options established from four applications with changes in boundary conditions that have influenced business model innovation. This process created space for energy policy and mobility policy to become increasingly intertwined as battery electric vehicles enter the mass market, raising questions over the future of automobility as well as electricity generation and distribution.

Dorst, H., van der Jagt, A., Toxepeus, H., Tozer, H., Raven, R. P. J. M. and Runhaar, H. (2022)
What's behind the barriers? Uncovering structural conditions working against urban nature-based solutions.
Landscape and urban planning, 220, 104335
link

Nature-based solutions (NBS) are a promising and innovative approach to address multiple sustainability challenges faced by cities. Yet, NBS are not integrated into mainstream urban development practices. Based on a qualitative comparative case study of Germany, Hungary, the Netherlands, Spain, Sweden, and the United Kingdom, this study shows how barriers to mainstreaming urban NBS are shaped by the structural conditions in urban infrastructure regimes, which offers an improved, context-sensitive understanding of why such barriers persist. We identify underlying structural conditions shaping seven key barriers to urban NBS: limited collaborative governance, knowledge, data and awareness challenges, low private sector engagement, competition over urban space, insufficient policy development, implementation and enforcement, insufficient public resources, and challenging citizen engagement. This study also advances an understanding of urban infrastructure regimes as complex, heterogeneous systems, made up of different functional domains that define the space available for sustainability innovations. Importantly, our case comparison reveals that similar barriers to NBS mainstreaming in planning processes are caused by different structural conditions across countries. For example, perceived causes of limited citizen engagement are low environmental awareness in Spain, a lack of resources to support participation in Hungary, and NIMBY-ism in the Netherlands. Our findings stress the importance of moving beyond 'silver bullet'-type approaches to addressing NBS mainstreaming barriers, towards systemic but context-sensitive responses, tailored to specific urban infrastructure regimes. This systematic understanding of barriers and their underlying structural conditions can help both scholars and practitioners identify promising pathways for the mainstreaming of NBS as an urban sustainability

innovation.

Holmén, J., Williams, S., and Holmberg, J. (2022)
Comparing sustainability transition labs across process, effects and impacts: Insights from Canada and Sweden.
Energy Research & Social Science, 89
link

Purposeful transformative change on a level of societal systems, structures and practices is called for in response to contemporary sustainability challenges. Sustainability transition labs and arenas represent a particular set of governance innovations seeking to foster systemic change based on deliberate engagement of multiple actors around complex issues of concern. Most labs aim for long-term contributions in addressing persistent societal challenges and transitioning into sustainability, yet are seldomly evaluated on whether, how and to what extents such contributions become realised in practice. In this paper, we further an analytical framework for comparatively analysing sustainability transition labs and arenas with emphasis on their processes, effects and impacts. The framework is applied on two cases: Energy Futures Lab initiated in Alberta, Canada and the arenas for a Fossil Independent West Sweden - Climate 2030. In particular, the comparison showcases how contextual difference in terms of urgency and turbulence may influence lab activities and how ownership and governance conditions may influence the various directions outputs, effects and wider impacts took. The comparison further illuminates how backcasting and the multi-level perspective may serve as complementary frameworks and tools in lab processes, whose respective role may depend on aspiration and context. We end the paper by providing a series of key considerations in furthering the comparative analytical framework and its application in practice. They orient around the three guiding questions on the why's, what's, and how's of doing comparative research on sustainability transition arenas and labs across their processes, effects and impacts.

Huber, A. (2022)
Does Sharing with Neighbours Work? Accounts of Success and Failure from Two German Housing Experimentations.
Housing, Theory and Society, in press
link

This paper analyses the normalization of everyday sharing practices in two exemplary German neighbourhoods, which both provide numerous opportunities for sharing spaces, stuff, food and mobility carriers, but differ regarding their “philosophy”. The first case belongs to the increasingly popular “collaborative housing” model, the second one is a developer-driven, service-based project. Inspired by core ideas from Social Practice Theory, the guiding questions of this research are then 1) to which extent have sharing practices become a normal part of residents’ lives in these neighbourhoods and 2) what may explain observed differences? Evidence shows that residents in the collaborative housing case share more frequently, more regularly and over longer timespans than their counterparts in the developer-driven neighbourhood. I argue that this is due to a higher share of fitting practice configurations and a better integration of sharing practices into tenants’ typical patterns of everyday life.

Hvitsand, C., Raanaas, R. K., Gjøtterud, S. and Nicolaysen, A. M (2022)
Establishing an Agri-food living lab for sustainability transitions: Methodological insight from a case of strengthening the niche of organic vegetables in the Vestfold region in Norway
Agricultural Systems, Volume 199, 103403
link

The aim of this study was to strengthen agri-food systems associated with organic vegetables in the Vestfold region in Norway by involving actors through a living lab and to generate knowledge regarding the establishment phase of cross-cutting change initiatives. This included exploring how actors from within and beyond the agri-food domain could be selected and recruited and investigating what characterize their perceived understanding of the current situation regarding organic vegetables and their shared vision. The study shows crucial steps in establishing an agri-food living lab, including introductory work of bounding the system, selecting actors, and conducting co-creative processes. The study developed and applied a procedure for discovering actors within and beyond the agri-food domain who could contribute to overcoming development obstacles. This procedure can be adjusted and utilized in other settings.

Jiang, S.-Y. (2022)
Transition and innovation ecosystem – investigating technologies, focal actors, and institution in eHealth innovations.
Technological Forecasting and Social Change, 175, 121369
link

It has been challenging to investigate transition in a quantitative way. The challenge includes the complex interconnectedness relations in actors, artefacts and

institutions and the lack of comprehensive datasets. However, after seeking the intrinsic properties of the social-technical system and innovation ecosystem theories, we propose a framework to investigate the transition in refinement and adjustment via realizing the patent citation network analysis. Then, we pick up the eHealth innovations as the investigation topic. The investigated elements include technology, actor and institution (standard). As a result, our analytical results reflect major historical events and results of prior studies, e.g., standard records. Next, we find that the observation of interconnectedness in technology and institution is accessible by the focal actors, especially the bridge role in the network. Then, we further confirm that the focal actors and their standardization behaviours are the main body to shape the transition activities. Thirdly, to observe the transition process, we assess the proposed framework by the core characteristics of the transition. Last, we differentiate two perspectives, technological trajectory and focal actor, on the standard investigation, which paves another way to investigate standards in innovation studies. The limitation is also described in the last section.

Kanger, L., Bone, F., Rotolo, D., Steinmueller, W. E. and Schot, J. (2022)
Deep Transitions: A Mixed Methods Study of the Historical Evolution of Mass Production.
Technological Forecasting and Social Change, 177, 121491
link

Industrial societies contain a range of socio-technical systems fulfilling functions such as the provision of energy, food, mobility, housing, healthcare, finance and communications. The recent Deep Transitions (DT) framework outlines a series of propositions on how the multi-system co-evolution over 250 years of these systems has contributed to several current social and ecological crises. Drawing on evolutionary institutionalism, the DT framework places a special emphasis on the concepts of 'rules' and 'meta-rules' as coordination mechanisms within and across socio-technical systems. In this paper, we employ a mixed-method approach to provide an empirical assessment of the propositions of the DT framework. We focus on the historical evolution of mass production from the 18th century to the present. Combining a qualitative narrative based on a synthesis of secondary historical literature with a quantitative text mining-based analysis of the corpus of *Scientific American* (1845–2019), we map the emergence and alignment of rules underpinning mass production. Our study concludes by reflecting on important methodological lessons for the application of text mining techniques to examine large-scale and long-term socio-technical dynamics.

Kanger, L., Tinits, P., Pahker, A.-K., Orru, K., Tiwari A. K., Sillak, S., Šeļa, A. and Vaik, K. (2022)
Deep Transitions: Towards a comprehensive framework for mapping major continuities and ruptures in industrial modernity.
Global Environmental Change, 72, 102447
link

The world is confronted by a socio-ecological emergency, requiring rapid and deep decarbonization of a broad range of socio-technical systems. A recent Deep Transitions framework argues that this fundamentally unsustainable trajectory has been generated by the co-evolutionary dynamics of multiple systems during the last 250 years. Altering this direction requires transformation in industrial modernity – a set of most fundamental ideas, institutions, and practices characterizing every industrial society to date. Although the proponents of the framework suggest that this shift has been unfolding since the 1960s, no attempts have been made to operationalize the concept of industrial modernity and to assess this claim. This paper develops a comprehensive multi-dimensional and multi-domain approach for the measurement of industrial modernity. As such it seeks to provide empirical evidence of long-term continuities and emerging ruptures in the dominant ideas, institutions, and practices of industrial societies along the domains of environment and technology. Using a methodologically novel approach where the text mining of newspapers is combined with data from various databases the paper provides results from three countries – Australia, Germany, Soviet Union/Russia – between 1900 and 2020. Despite considerable country-level differences the results show shifts in public environmental discourse from the 1960s, followed by institutional changes from the 1980s but with only a modest change in practices. We also observe some change in the direction of innovative activities and their regulation coupled with a resurgent optimism in technology-environment discourse. The findings tentatively suggest that industrial modernity might be in the process of hollowing out along ideational and institutional dimensions in the environmental domain but less so in the domain of technology and innovation.

Krupnik, S., Wagner, A., Koretskaya, O., Rudek, T., Wade, R., Mišik, M, Akerboom, S., Foulds, C., Smith Stegen, K., Adem, Ç., Batel, S., Rabitz, F., Certomà, C., Chodkowska-Miszczuk, J., Denac, M., Dokupilová, D., Leiren, M. D., Frolova Ignatieva, M., Gebaldón-Estevan, D., Horta, A., Papamikrouli, L., Pellizioni, L., Sareen, S., Sarrica, M., Seyfang, G., Sovacool, B. A., Telešienė, A., Zapletalová, V. and von Wirth, T. (2022)
Beyond Technology: A research agenda for Social Sciences and Humanities research on renewable energy in Europe.

Energy Research & Social Science 89, 102536, 1-11
link

This article enriches the existing literature on the importance and role of the social sciences and humanities (SSH) in renewable energy sources research by providing a novel approach to instigating the future research agenda in this field. Employing a series of in-depth interviews, deliberative focus group workshops and a systematic horizon scanning process, which utilised the expert knowledge of 85 researchers from the field with diverse disciplinary backgrounds and expertise, the paper develops a set of 100 priority questions for future research within SSH scholarship on renewable energy sources. These questions were aggregated into four main directions: (i) deep transformations and connections to the broader economic system (i.e. radical ways of (re)arranging socio-technical, political and economic relations), (ii) cultural and geographical diversity (i.e. contextual cultural, historical, political and socio-economic factors influencing citizen support for energy transitions), (iii) complexifying energy governance (i.e. understanding energy systems from a systems dynamics perspective) and (iv) shifting from instrumental acceptance to value-based objectives (i.e. public support for energy transitions as a normative notion linked to trust-building and citizen engagement). While this agenda is not intended to be—and cannot be—exhaustive or exclusive, we argue that it advances the understanding of SSH research on renewable energy sources and may have important value in the prioritisation of SSH themes needed to enrich dialogues between policymakers, funding institutions and researchers. SSH scholarship should not be treated as instrumental to other research on renewable energy but as intrinsic and of the same hierarchical importance.

Matschoss, K., Mikkonen, I., Gynther, L., Koukoufikis, G., Uihlein, A. and Murauskaite-Bull, I. (2022)
Drawing policy insights from social innovation cases in the energy field.
Energy Policy, 161, 112728
link

Social innovation is increasingly turned to when attempting to address pressing social needs and emerging issues having a social impact because of its inherent promise for societal improvement. The aim of this paper is to explore, demonstrate and confirm the potential role of social innovations in contributing towards low-carbon transitions in the energy field. The study locates the adequate fields of intervention for energy policymaking for the support of social innovation through a multiple case study of six empirical social innovation cases in the energy field in Europe. We discuss the energy policy context of the social innovation cases and how they contribute to transition as well as their broader impacts. These cases demonstrate many positive effects including measurable impacts in emissions reduction, green investments and an increase in renewable energy production. The study shows that while there has been no general focus on diffusion, some social innovation cases have scaled up nationally and internationally highlighting the potential of transitions to social innovations on the system level. Finally, the paper highlights that legislative and non-legislative policies play a crucial role in the diffusion of social innovations as they are interlinked with administrative and socio-spatial scales and non-energy-related policies or societal fields.

O'Riordan, V., Rogan, F., Gallachóir, B., Mac Uidhir, T. and Daly, H. (2022)
How and why we travel – Mobility demand and emissions from passenger transport.
Transportation Research Part D: Transport and Environment, 104, 103195
link

Due to the need for faster reductions in transport greenhouse-gas emissions, policy makers are increasingly paying attention to the role of reducing mobility demand and shifting towards low carbon transport modes. This paper develops the novel open-source Irish Passenger Transport Emissions and Mobility (IPTEM) model and uses it to calculate passenger transport demand by trip mode, purpose, and distance over the period of 2009 – 2019. The paper quantifies energy consumption and emissions intensities, and for the first time for Ireland, passenger transport occupancy rates. The findings quantify missed targets in walking and cycling uptake rates. In 2019, travel for work purposes contributes the greatest to overall passenger transport demand (30%) followed by shopping (19%) and companion journeys (16%). Journeys under 8 km were responsible for 37% of passenger transport emissions.

Pahle, M., Tietjen, O., Osorio, S., Egli, F., Steffen, B., Schmidt, T. S. and Edenhofer, O. (2022)
Safeguarding the energy transition against political backlash to carbon markets.
Nature Energy
link

Substantial renewable energy (RE) cost reductions have raised the prospect of a subsidy-free RE era of the energy transition. The envisaged policy cornerstones of this era are carbon markets, which create economic incentives for sustaining further RE deployment. However, this overlooks that exposing RE to market risks and increasing interest rates would result in

substantially higher financing cost, which in turn would lead to much steeper carbon price paths. The resulting political pressure may provoke a price-depressing regulatory intervention, disrupting further RE expansion. Here we conceptualize this feedback and infer indicators for the risk of such an intervention. By quantifying these indicators for the European Union, we find that increased financing cost could double carbon prices in the long term, halve the rate of renewable capacity deployment in the next 15 years and considerably increase the profits of fossil fuel plants. This implies a substantial risk of pushback that policymakers should safeguard against.

Rohe, S. and Mattes, J. (2022)
What about the regional level? Regional configurations of Technological Innovation Systems.
Geoforum, 129, 60 – 73
link

Regional innovation policy must not only strive for economic competitiveness, but also push novel and more sustainable technological solutions. The complex and multi-scalar process of developing and diffusing new technologies is captured by the Technological Innovation Systems (TIS) framework. However, the approach neglects regional heterogeneity and lacks a nuanced and systematic understanding of how technological change plays out differently across places. We thus complement TIS with insights from the literature on Regional Innovation Systems (RIS), which offers manifold comparisons and typologies of institutional contexts for regional innovation. We argue that three ideal-typical configurations – localist-grassroots, interactive-networked, and globalist-dirigiste – exist at the intersection between a technological and specific regional innovation system. We discuss how these regional configurations contribute differently to knowledge creation and market formation within the overall TIS and point to innovation-related challenges they are confronted with, such as organizational/institutional thinness, technological lock-ins, and fragmentation. We illustrate our conceptual arguments with a brief comparative case study on three German regions in the TIS for onshore wind energy (North Frisia, Oldenburg, and Magdeburg). Overall, this paper contributes to the literature on the geographies of innovation and sustainability transitions, introduces a framework for analyzing regional heterogeneity in TIS, and enables more fine-grained technology-and place-specific policy interventions at the regional level.

Schmid, N. and Guinaudeau, B. (2022)
Mapping public support for climate solutions in France.
Environmental Research Letters, In press
link

Although successful sustainability transitions depend on public support, we still know little about citizens' opinion on specific climate solutions. Existing research often focuses on the problem perception of climate change rather than analyzing attitudes toward individual climate solutions. Studies also largely use closed questions to assess public opinion, posing a problem of ecological validity. Here, we address these gaps by leveraging data from a large-scale public consultation process, the "Grand Débat National", launched by the French government in 2019 in response to the Yellow Vest movement. Combining structural topic modelling, dictionary-based automized text analysis and qualitative coding, we map the salience and directionality of public opinion on climate solutions, and related policy instruments. We find that consultation participants perceive climate change as the most salient environmental problem. Transforming the transport and energy sectors ranks highest as solutions for addressing climate change. For these two sectors, substitution-based climate solutions - as opposed to sufficiency- or efficiency-based measures - are most salient. For instance, participants stress the need to switch to battery electric vehicles or transition to renewable energy technologies for power generation. Our findings demonstrate a strong public consensus on most substitution-based climate solutions, except for the role of cars and nuclear energy. While the majority of participants does not explicitly link climate solutions to specific policy instruments, we find preferences for authority-based measures in the context of phasing out polluting technologies, and treasury-based measures for supporting innovation and phasing-in low carbon technologies.

Sharp, D., Anwar, M., Goodwin, S., Raven, R. P. J. M., Lyn, B. and Kamruzzaman, L. (2022)
Empowering community engagement in data governance for smart and sustainable cities: co-creation, pluralism and uncertainty.
Data & Policy, 4
link

Data governance is an emerging field of study concerned with how a range of actors can successfully manage data assets according to rules of engagement, decision rights, and accountabilities. Urban studies scholarship has continued to demonstrate and criticize lack of community engagement in smart city development and urban data governance projects, including in local sustainability initiatives. However, few move beyond critique to unpack in more detail what community engagement should look like. To overcome this gap, we develop and test a participatory methodology to identify approaches to empowering community engagement in data governance in the context of the Monash Net Zero Precinct in Melbourne,

Australia. Our approach uses design for social innovation to enable a small group of "precinct citizens" to co-design prototypes and multicriteria mapping as a participatory appraisal method to open up and reveal a diversity of perspectives and uncertainties on data governance approaches. The findings reveal the importance of creating deliberative spaces for pluralising community engagement in data governance that consider the diverse values and interests of precinct citizens. This research points toward new ways to conceptualize and design enabling processes of community engagement in data governance and reflects on implementation strategies attuned to the politics of participation to support the embedding of these innovations within specific socio-institutional contexts.

Simoens, M. C., Fuenfschilling, L. and Leipold, S. (2022)
Discursive dynamics and lock-ins in socio-technical systems: an overview and a way forward.
Sustainability Science
link

Understanding the dynamics of stability and change is key to accelerate sustainability transitions. This paper aims to advance and inspire sustainability transition research on this matter by collecting insights from interpretative environmental discourse literature. We develop a heuristic that identifies and describes core discursive elements and dynamics in a socio-technical system. In doing so, we show how the interplay of meta-, institutionalized, and alternative discourses, dominant, marginal, and radical narratives, as well as weak and strong discursive agency influence the socio-technical configuration. The heuristic suggests three discursive lock-ins reinforcing the stabilization of socio-technical systems: unchallenged values and assumptions, incumbents' discursive agency, and narrative co-optation. Furthermore, it explores three pathways of discursive change: disruptive, dynamic and cross-sectoral. Overall, this paper puts forward a discursive perspective on sustainability transitions. It offers additional analytical approaches and concepts for discursive transition studies, elaborated insights on the dynamics within and between the analytical dimensions of a socio-technical system, as well as a theoretical baseline for analyzing discursive lock-in mechanisms and pathways of discursive change.

Sovacool, B. K., Daniels, C. and AbdulRafiu, A. (2022)
Transitioning to electrified, automated and shared mobility in an African context: A comparative review of Johannesburg, Kigali, Lagos and Nairobi.
Journal of Transport Geography 98, 103256, 1-15
link

This article focuses on the drivers and barriers afforded by three innovations—automated vehicles, electric mobility, and ridesharing and bike-sharing—in the four African urban areas of Johannesburg (South Africa), Kigali (Rwanda), Lagos (Nigeria) and Nairobi (Kenya). We ask: what are the drivers behind these innovations in these regions? What are the potential barriers? And what implications for policy or sustainability transitions emerge? Based on a review of the academic literature, we argue that these innovations are particularly important at providing low-carbon transitions for the transport sector, even though low-carbon development is an important topic that is under-researched in many developing economies. We begin by introducing these three innovations and justifying our four case studies. We base the research design on an interdisciplinary critical and umbrella literature review. We then discuss the results of our review, which is organized as a dualism of positive drivers and negative barriers, before discussing how to better harness innovation for low-carbon mobility in an African context. We find that the possible benefits of our three innovations exist only juxtaposed against negative barriers; no innovation is purely positive or negative and all of them have multiple dimensions of positivity and negativity. Although we have treated each of the three innovations as fairly isolated from one another, there are emergent (and potentially strong) couplings or entanglements between them, e.g. between electrification and two-wheelers or automation and ridesharing. In some contexts, hybridization, incrementalism and leapfrogging are seen as positive attributes and desirable characteristics of planning and technology adoption.

Sovacool, B. K. and Dunlap, A. (2022)
Anarchy, war, or revolt? Radical perspectives for climate protection, insurgency and civil disobedience in a low-carbon era.
Energy Research & Social Science, 86, 102416, pp. 1-17
link

What radical tactics might those seeking transformational action on climate or environmental sustainability undertake? What options are capable of stopping actors and institutions who already realize their actions and behavior may harm millions, degrade the biosphere, and contaminate the climate, but continue to do so, despite the scientific or moral reasons not to? This paper explores efforts that can vigorously confront apathy and inaction and potentially subvert power relations currently perpetuating climate catastrophe and environmental destruction. We examine the tactics employed over time from civil disobedience and (strict) nonviolence, antiauthoritarian strategies and self-defense as well as guerrilla warfare

perspectives, and distill from them options for potential climate action. In doing so, we offer a comprehensive inventory of 20 distinct direct action tactics that, while unsavory in some contexts, offer a chance of creating social change. In doing so, we also draw from the wealth of knowledge regarding protests, social movements, self-organization, and an array of different struggles and strategies.

Sovacool, B. K., Hess, D. J., Cantoni, R., Lee, D., Brisbois, M. C., Walnum, H. J., Dale, R. F., Rygg, B. J., Korsnes, M., Goswami, A., Kedia, S. and Goel, S. (2022)
Conflicted transitions: Exploring the actors, tactics, and outcomes of social opposition against energy infrastructure.
Global Environmental Change 73, 102473, 1-28
link

Given the growing frequency, severity, and salience of social mobilization and community action on energy and climate issues, in this study we systematically explore the configurations of types of infrastructure, actors, tactics, and outcomes of recent opposition to energy transitions across seven carbon-intensive regions in Asia, Europe, and North America. Based on both a literature review and an original dataset of 130 case studies spanning the past decade, we track opposition to a wide range of energy infrastructure in these regions, including low-carbon options such as renewable energy and nuclear power; provide network analyses of the actors and coalitions involved in such events; and develop a typology and frequency analysis of tactics (such as litigation or protest), and outcomes (such as remuneration, policy change, concessions, or labor protections). We show that the politics of energy transitions in carbon-intensive regions varies significantly from country to country and across types of energy, and we discuss how the configurations of infrastructure, actors, tactics, and outcomes can be explained by differences in national institutions and their responses to global or supranational pressures. By bringing both a sociotechnical and comparative perspective to the global analysis of social movements and energy transitions, we suggest how goals of energy transition are refracted through national and subnational institutions and through local mobilizations both in support of and opposed to those transitions.

Talmar, M., Walrave, B., Raven, R. P. J. M., and Romme, A. G. L. (2022)
Dynamism in policy-affiliated transition intermediaries.
Renewable and Sustainable Energy Reviews, 159, 112210
link

Transition intermediaries are actors that support socio-technical transition processes by bridging structural deficiencies in a transitioning domain. Previous research has identified what roles transition intermediaries perform and how. However, while transitioning domains are by definition in a state of change, the dynamics of transition intermediaries have hardly been studied. Therefore, we explore what mechanisms are driving change in transition-supportive roles of intermediaries, and what kind of conditions enable an intermediary to be dynamically adaptive in supporting a transitioning domain. These questions are addressed in a longitudinal case study of a major European intermediary in sustainable energy. We find this intermediary changed its transition support activities as a result of the frontline staff continually exploring the needs of transition stakeholders and designing new value offerings in response. These role dynamics are enabled by a structure where the policy principal delegates the choice of support activity and external accountability to the intermediary, which organizes itself in a customer-oriented manner. As such, we conclude that the dynamics in intermediaries' transition activities arise from the interplay between policy mandate, organizational structure/design and staff agency.