

Newsletter 13, September 2014

This is the thirteenth newsletter from the steering group of the Sustainability Transitions Research Network. The newsletter is divided into the following sections:

- Words from the Chairman
- Environmental Innovation and Societal Transitions
- Network news
- Event announcement
- New research projects
- Publications

We welcome all members to submit news items for the next newsletter. You can use the website www.transitionsnetwork.org (submit projects, output or news), or send a message to sustainabilitytransitions@gmail.com. The advantage of using the website for submission is that the information also becomes available online.

The STRN steering group

Words from the Chairman

Dear transition research colleagues,

The fifth International Sustainability Transitions conference (27-29 August 2014) was not only great because it provided a well-organized venue for STRN-members to meet and exchange idea, but also because it signaled the fifth anniversary of STRN, which started in 2009. We can conclude that the initial dream of creating an international transitions research community has come true. We have strong institutional pillars such as a dedicated journal (EIST), annual conferences, and a dedicated network (with mailing list and newsletter).

We are also producing excellent outputs and impacts, e.g.

- increasing numbers of interesting and highly cited papers (visible in a lengthening publications section in the newsletter)
- very high impact in some of the 'traditional' innovation journals (e.g. Research Policy; Technology Analysis and Strategic Management; Technological Forecasting & Social Change), which contain many transition-related papers in their top-25 of highly cited papers
- increasing dissemination in other journals and fields, e.g. domain-oriented journals (in transport, energy, food, water, housing), sustainability journals, governance journals
- increasing attention from national and international policymakers (e.g. Dutch and German government, OECD, UNEP, World Bank).

Substantively, the transitions community has not only developed new intellectual frameworks (e.g. MLP, SNM, TIS, TM), but is also exploring various new directions drawing on insights from the wider social sciences, e.g. institutional logics, social innovation, business models, grassroots innovation, political economy and power, legitimacy and cultural discourse, practice theory and demand side, cities and space, modelling and other new methods, micro-dynamics and strategy. So, initial worries that the transitions field was too inward-looking and intellectually committed to too few frameworks may be less pertinent now.

So, overall, we can be quite happy how the transitions community has developed in the last 5 years and the current trajectory it is on. Nevertheless, to prevent complacency, there are also some interesting issues and topics that we may address in the next five years:

- We have done many studies of *single* green innovations, and could now pay more attention to interactions between *multiple* green innovations and how these may hinder each other (e.g. through competition or creating uncertainty) or positively reinforce each other (e.g. contribute to a shared discourse or lobbying force).

- We have done many studies of the *emergence* of green innovations, and could now pay more attention to diffusion and breakthrough; accelerated diffusion is also pertinent, given the timescale and urgency in addressing certain environmental problems

- We have done many studies of *green* innovations, and could now also pay more attention to the decline of existing non-sustainable systems, practices and technologies; this is particularly important with regard to the carbon-budget debate, which says that about 2/3 of proven fossil fuel reserves (coal, oil, gas) should stay in the ground if we want to limit climate change to two degrees. This topic would also mean addressing resistance (and possible reorientation) of big incumbent actors (who could accelerate sustainability transitions if they mobilized their financial resources, knowledge and political contacts).

- We could also investigate interactions between multiple systems (transport, electricity, agro-food, housing), which are important for various green innovations (e.g. battery-electric vehicles, biofuels, bio-energy, vehicle-to-grid).

- We have done many studies of the dynamics of 'solutions', and could perhaps also pay more attention to the dynamics of 'problems', e.g. the ups and downs of public attention to problems such as climate change; their rise and fall on political agendas, how problems are framed, which coalitions support certain problem definitions, and more generally how these dynamics affect the public sense of urgency and political will to address them. The underlying assessment is that many feasible solutions exist, but that there is lack of socio-political pressure to implement them (in a timely manner).

So, while the last five years have been very productive for transitions research and for the creation of a dedicated international community, there are still many important and interesting topics for us to address in the next five years.

I hope you will enjoy this new version of the STRN newsletter, which updates you about new articles in EIST, a new book series, an early career researcher network, various other sustainability transition initiatives, upcoming conferences, reviews of past conference (including 5-IST). The newsletter also contains a wide range of interesting new papers and publications. I want to thank all contributors to this newsletter for their contributions and hope you find the news updates interesting and relevant.

Frank Geels, Chairman of STRN (frank.geels@mbs.ac.uk)

Environmental Innovation and Societal Transitions

Volume 12 (September 2014) of *Environmental Innovation and Societal Transitions* is online (<http://www.sciencedirect.com/science/journal/22104224>). It is a regular issue that contains the following articles:

Cook, M., 2014, Fluid transitions to more sustainable product service systems, *Environmental Innovation and Societal Transitions*, 10, 1-13

Suvi Huttunen, Paula Kivimaa, Venla Virkamäki, 2014, The need for policy coherence to trigger a transition to biogas production, *Environmental Innovation and Societal Transitions*, 12, 14-30

David J. Hess, Quan D. Mai, 2014, Renewable electricity policy in Asia: A qualitative comparative analysis of factors affecting sustainability transitions, *Environmental Innovation and Societal Transitions*, 12, 31-46

George Papachristos, 2014, Transition inertia due to competition in supply chains with remanufacturing and recycling: A systems dynamics model, *Environmental Innovation and Societal Transitions*, 12, 47-65

Nigel Forrest, Arnim Wiek, 2014, Learning from success—Toward evidence-informed sustainability transitions in communities, *Environmental Innovation and Societal Transitions*, 12, 66-88

The next issue will include selected papers of the Zürich 2013 IST conference, namely the finalists for the best paper award and a plenary lecture. The subsequent special issue will address the future of the electric car.

You are kindly reminded of the suggestion expressed at the Utrecht conference that we welcome suggestions for viewpoints (of approx. 1000 words) that can stimulate debate. If possible, we would like to publish each time two opposing viewpoints. Please contact us for ideas about potential topics and authors (yourself or others).

Finally, we would like to inform you that we intend to take further measures to ensure the high standard of publications in our journal. In particular we want to curtail the trend of publishing articles with significant overlap in empirical material and/or conceptual approaches with already published journal articles. In collaboration with Elsevier, the originality of articles will automatically be checked by “anti-plagiarism software”, which detects textual overlap with papers on internet. In case we find unacceptable overlap we will either reject the paper or ask the authors to make appropriate amendments. More generally, we would like all authors to make sure there is no conceptual, methodological or empirical (data) overlap of studies submitted to EIST with articles published or forthcoming in other journals.

Jeroen van den Bergh, Editor-in-Chief [jeroen.bergh@uab.es]

Network News

Any news related to ongoing activities of STRN

New book series

We proudly announce the establishment of a new book series dedicated to urban sustainability transitions, titled “*Theory and practice of urban sustainability transitions*” to be published by Springer. This series aims to provide timely coverage of the theory and practice of urban sustainability transitions. In addition to further conceptualizing and theorizing transitions in an urban context, this series provide insights into how cities are addressing the sustainability challenge conceptually and practically. It is also aimed at learning from a comparison of and timely reflection on governance strategies in different countries, in different kinds of cities, as well as across policy domains. Finally, the book series aims to provide case studies and contextualized tools for the governance of urban transitions. For more information see: <http://www.springer.com/series/13408>. We hope you share our excitement about this new opportunity to share latest insights on urban sustainability challenges, dynamics as well as governance. We invite contributions from the field and hope this book series will become a platform of exchange on urban sustainability transitions. Series Editors are Derk Loorbach (DRIFT, Erasmus University), Hideaki Shiroyama (Tokyo University), Julia Wittmayer (DRIFT, Erasmus University), Junichi Fujino (National Institute for Environmental Studies Japan), and Satoru Mizuguchi. If you have any questions, please contact the book series editors via loorbach@drift.eur.nl and/or wittmayer@drift.eur.nl.

Early career researcher network

An early career researcher network called ‘Practices, the Built Environment and Sustainability (PBES)’ has been established over the spring and summer of 2014. The purpose of the network is to establish a community of social practice researchers who have an interest in sustainability of the built environment and the changes related to that, and are keen to move away from the ‘ABC’ and technological deterministic mentality that dominates building-related studies. The Network’s focus is therefore relevant to that of the STRN network. The PBES network has been established and organized by Dr Chris Foulds from the Global Sustainability Institute (GSI) at Anglia Ruskin University in Cambridge, and by Dr Charlotte Louise Jensen from the Center for Design, Innovation and Sustainable Transitions

(DIST) at Aalborg University Campus Copenhagen. The PBES network is constituted by 18 outstanding early career researchers who met the criteria of the Call and Review process, for which there was overwhelming interest with over six applications per network position. Over the summer, the network has produced a collection of 9 Thinking Notes exploring the usefulness as well as the potential gaps of theories of practices in relation to exploring studies of the built environment and sustainability, and the network recently came together to present the Thinking Notes. The Notes have received feedback from Prof. Susse Georg, Dr Russell Hitchings, Dr Yolande Strengers, Prof. Elizabeth Shove, Dr Tom Hargreaves and Dr Dan Welch, and the network is supported by GSI, DIST AAU and BSA Climate Change Study Group. The PBES Thinking Note Collection can be found here:

http://www.anglia.ac.uk/ruskin/en/home/microsites/global_sustainability_institute/publications/thinking_note.Maincontent.0003.file.tmp/PBES%20Thinking%20Note%20collection_final.pdf

For more information, please contact: **Charlotte Louise Jensen (cjensen@plan.aau.dk)**.

Sustainability Transitions out There

It is intriguing to witness the rich diversity of networks and organisations 'out there' that are explicitly using the notion of sustainability transitions, ranging from grassroots movements and NGO networks to EU platforms and US policy institutes. Without any pretence of providing a comprehensive overview, I would like to mention four examples:

1) The *Platform Making Transitions Happen* (MTH, <http://www.climate-kic.org/themes/making-transitions-happen/>) has a goal to "create a low carbon culture that engages companies, communities and citizens to reduce their impact and connect globally on the climate change challenge". The MTH platform is part of the Climate-KIC programme, one of the 'Knowledge & Innovation Community' (KIC) programmes of the European Institute of Technology (EIT). The MTH-platform together with various other Climate-KIC programs finances and hosts a high number of trainings, summer schools and challenges around sustainability transitions across various European regions.

2) The *Smart CSO* (= Civil Society Organisations) Lab (<http://www.smart-csos.org/>) is an international network of more than 1000 activists, CSO leaders and researchers "aiming to fundamentally rethink and redesign how activists and change agents in civil society can effectively work towards a systemic change". This systemic change is referred to as "the Great Transition". They propose 5 leverage points as a basis for "a meta-theory of change for the Great Transition from a CSO perspective". Interestingly, these 5 leverage points are based on the Multi-level Perspective (see <http://www.smart-csos.org/5leveragepoints>).

3) The *Transitions Town* network (TT, <http://www.transitionnetwork.org/>) is a charitable organisation that facilitates communities "as they self-organise around the Transition model". There are over a thousand of such (highly diverse) communities across the world, working on "transitioning" towards a more resilient and sustainable future. There is also a related *Transition Research Network* (TRN, <http://www.transitionresearchnetwork.org/>), which aims to build "mutually beneficial relationships between Transition activists and researchers". The TT and TRN networks cooperate with several other grassroots organisations, for instance under the *ECOLISE network* which promotes and supports local communities across Europe "in their efforts to build pathways to a sustainable future" (<http://www.ecolise.eu/>).

4) Moving beyond the European roots of the examples above, the USA harbours the headquarters of the *Great Transition network* (GT Network, <http://www.greattransition.org/>), which involves a "global, interdisciplinary group of hundreds of scholars and activists who share a common goal of elaborating visions and pathways for a Great Transition". It is financed by the Tellus Institute (<http://tellus.org/>), a research and policy organization that dedicates itself to addressing "a Great Transition to a sustainable, just, and livable global civilization".

These are just a few examples of networks and organisations consciously and explicitly working on sustainability transitions. Within and around the STRN community, there is an increasing amount of projects and programmes that pay attention to such networks and organisations. Not only as empirical case-studies, but also as partners in education, political action, and/or the 'co-production' of transdisciplinary knowledge. Examples of such

educational projects include the transition trainings in the *Climate KIC Pioneers into Practice* programme (<http://www.innovationbham.com/projects/pioneers-into-practice/>) and the *Transition Academy* (<http://transitionacademy.nl/>). Examples of transdisciplinary research projects include *TESS* (<http://www.tess-transition.eu/about/>), *PATHWAYS* (<http://www.pathways-project.eu/home>), *ARTS* (<http://acceleratingtransitions.eu/>) and *TRANSIT* (<http://www.transitsocialinnovation.eu/>). I hope that these and other activities will increase our STRN awareness of - and cooperation with – other organisations and networks that strive to understand and foster sustainability transitions.

Flor Avelino (avelino@drift.eur.nl)

Event announcements

Calls for upcoming relevant events such as workshops and conferences

Call for Papers for ESEE 2015: Transformations Conference in Leeds

The 11th international conference of the European Society for Ecological Economics (ESEE) will take place in Leeds, UK from 30 June – 3 July 2015. The conference topics include: post-growth economics; natural resources, ecosystem services and environmental quality; development, consumption and well-being; power, politics, institutions and the reality of achieving change; new business models and understandings of human behaviour. We would like to invite proposals for special sessions (deadline 15 October 2014) and abstracts for papers (deadline 30 November 2014) relating to these topics.

For more information and submission see <http://www.esee2015.org/> Tim Foxon (t.j.foxon@leeds.ac.uk).

Workshop “which transition toward a bioeconomy and a doubly green chemistry?”. 29th September 2014, Reims, 14h-17h.

As part of the emergence of a transdisciplinary CNRS network “Green Chemistry and Bioeconomy”, the research centre REGARDS (University of Reims, France) is organising a special session of its seminar “Sustainable Development” with Michael Carus, director of the nova-Institute. This session aims at discussing a “macro” and institutional vision of the field of the green chemistry of the biomass (doubly green chemistry). After an introduction by Christophe Bliard (CNRS) on the debate between the developments of biobased molecules copying the petrochemistry vs new products, Michael Carus will be speaking on his analysis of the emergence of a bioeconomy and will explain his reform proposals concerning policies for the transition toward the use of renewable resources and the production of biomaterials. Martino Nieddu (director of the research centre REGARDS) will conclude with a presentation on the variety of technological trajectories that are animating the transition toward a doubly green chemistry. The afternoon will end with a question/debate session. It is also possible to attend the meeting with “Webinar”. For further information and questions, please contact Nicolas Béfort (nicolas.befort@univ-reims.fr).

Event Reviews

Review of events interesting to the STRN community

5th International Sustainability Transitions (IST) Conference August 27-29, 2014 Utrecht, The Netherlands

In August 2014, around 230 members of the STRN community gathered at Utrecht University for the annual IST conference with the overarching theme “Impact and Institutions”. The first keynote speech by *Marjan Minnesma*, director of the Dutch action organization Urgenda, gave an inspiring insight into the wants and needs of sustainability practitioners and urged us to become “scientivists” – a combination of scientists and activists that might be needed in order to accelerate the pace of sustainability transitions in many

fields. With her request “I expect more!”, the tone of the conference was set and the meeting kicked off.

Over three days, early career scholars as well as experienced senior scientists from many different countries and academic backgrounds presented their research. A diverse range of analyses and propositions on how to further the study of transition processes in sectors like energy, transport, agro-food and water, as well as in regard to smart cities, health and housing were discussed. A special session on the future of TIS furthermore provided a platform to discuss or at least raise some of the most fundamental questions that keep this community busy. Frans Berkhout, Florian Kern, Lars Coenen, Jochen Markard and Marko Hekkert each provided interesting and controversial reflections, which spurred a discussion not only in the audience, but also throughout the entire conference. In my view, two broader questions stood out and I would like to share some personal reflections in regard to them:

The first question is: What is the relevance of technology/materiality and technological innovation for sustainability transitions? The foundational literature clearly emphasizes the notion of socio-technical co-evolution and systemness and hence interactions between materiality and socio-institutional processes. This socio-technical perspective was long the cornerstone of transition research and constituted its unique added-value to the debate about general social change. Looking at many paper presentations as well as comments made in regard to the relevance of TIS research, it seemed to me that some of these unique characteristics were being downplayed (e.g. by scholars focusing on ‘social innovation’ or governance). While some of these ‘corrections’ are perhaps fruitful, they may run the risk of losing earlier insights and reproducing traditional social science distinctions that treat the social, political, technical, and economic as separate domains and pay limited attention to their interaction and co-evolution.

A related question then is: Do we need an all-encompassing framework, such as the MLP or the TIS, to address transition dynamics or should we focus on different aspects, e.g. politics, geography, institutions, etc. one by one? Are sustainability transitions too broad and complex to be captured by one researcher with one data set using one analytical framework? My tentative answer would be: Yes, social change is too complex to be analyzed and depicted in one framework. However – this does not imply that there shouldn’t be an underlying common understanding of what aspects we study and why. The MLP, for instance, has plenty of times been referred to as a suitable heuristic for the diverse range of aspects that are considered crucial for socio-technical transition processes. Each of those aspects can and should be studied in-depth, as also pointed out in the keynote lectures held by professors *Ans Kolk*, *Raghu Garud* and *Tine de Moor*. They all highlighted the importance of integrating knowledge from other disciplines into the study and the theorization of sustainability transitions, such as from business and management or history. This includes for instance phenomena like the globalization of business and the respective importance of multi-national organizations; the role of “narrators” within sectors and society in shaping discourses and action; or a historical perspective, which reveals that many ideas discussed under the header of ‘social innovation’ or sustainability today have already been ‘invented’ and dominant in earlier times, e.g. collective organizations like commons, guilds or cooperatives. Nevertheless, if we want to remain an independent community and not just a subgroup of every other traditional discipline, I think it will become increasingly crucial for us to put such insights in relation to the overarching theme of socio-technical transitions. We might also want to make a contribution to those disciplines with our specific understanding of socio-technical change: What is the role of materiality for institutionalization processes? What is the socio-technical nature of politics? How do governance approaches change if they do justice to the socio-technical reality?

Prof. *Johan Schot*, new director of SPRU and one of the early contributors to the field of sustainability transitions, held an inspiring closing keynote, where he called for a focus on the Second Big Transition, namely the struggle for inclusive capitalism. His hypothesis is that this transition will depend on the creation and institutionalization of new, radically different societal rule sets and practices on the level of the techno-economic

paradigm and that therefore a focus on individual subsystems like energy, water or transport will not suffice. Instead, transition scholars should increasingly focus on the interrelation between them – a Big Transition will require changes in and between multiple systems. Although innovation is seen to take center stage in such a Big Transition, Schot expects that the understanding of innovation and the innovation process itself will be radically transformed. This holds especially true regarding the idea that innovation should generally be fostered and negative impacts minimized through regulation. How a new understanding of innovation might look like and how the next Big Transition could be achieved will surely be interesting questions for the next IST conference held by SPRU, University of Sussex, in 2015. I am looking forward to meeting many of you there!

Lea Fuenfschilling, (lea.fuenfschilling@unilu.ch)

Second Conference of the RSA Research Network on “Governing the Sustainability Transition – Defining Challenges and Opportunities for the Regional Scale”

On 10-11 July 2014 the network supported by the Regional Studies Association held its second conference at the University of St. Gallen, Switzerland, bringing together 36 researchers and practitioners from 14 countries. Taking the perspective of governance at the local and regional scale, the papers covered a wide range of topics from conceptual work to case studies, from sustainability transitions in general to energy and mobility, and from initiating change to monitoring it. Much time was reserved for discussions which dealt, for example, with the role the Multi-level Perspective can still play against the background of rapidly developing transition theory. Moreover, the notion of scaling, the significance of experts, and the allocation of responsibilities to various politico-administrative scales were addressed. With regard to trade-offs in policy-making, the need to refine the sustainability concept was called for; this includes acknowledgement of the social impacts of the transition. Furthermore, the question whether any attempt to radically change the values of sovereign citizens is acceptable, particularly with regard to structures and levels of consumption, as well as the impact on the poorest countries. Finally, rebound effects (e.g. no car – more flights) were touched upon, raising the question whether “green cities” really contribute to sustainability. The rather pessimistic view of some participants about the progress of the sustainability transition even led to the conclusion that further research and policy advice may first require explicit recognition that efforts to date have failed.

The next meeting of the network will be held in Chicago in connection with the Annual Meeting of the Association of American Geographers on 21-25 April 2015.

**Gerd Lintz, Leibniz Institute of Ecological Urban and Regional Development
Dresden/Germany. (g.lintz@ioer.de)**

Fourth International Conference on Degrowth for Ecological Sustainability and Social Equity

The 4th International Degrowth Conference took place in the German city of Leipzig from September 2-6, 2014 - and it was the largest conference on Degrowth so far with 3.000 participants (750 were international). The participants and contributors were a mix of activists, researchers, social entrepreneurs, transitioners, eco-villagers, etc. The conference gave room for scientific debates, exchange between activists and economic pioneers as well as artistic approaches to the subject. The organization of Degrowth 2014 itself was a quite of a model of how these huge events can be organized differently. Food was provided every day twice by a local grassroots cooking group (Volxküche) enrolling participants to chop kilos of local organic vegetables. Only two time slots a day were reserved for scheduled sessions. The rest of the time being used for plenary keynotes, book presentation, film projections and a very lively open space. The program encompassed research on macroeconomic models, open source hardware, peer production, convivial technologies, alternative monetary systems, urban transformation, shrinking cities and, over and over again, critiques of the neo-liberal and productivist economic model emphasizing political resistance and civic disobedience. The program can be viewed here:

<http://programme.leipzig.degrowth.org/en/degrowth2014/public/schedule>

For more information, contact: Daniel Constein, Konzeptwerk Neue Ökonomie e.V., d.constein@degrowth.de or Best Benjamin, Wuppertal Institute for Climate, Environment and Energy, benjamin.best@wupperinst.org>

New research projects

Information about ongoing research activities such as the start of new research projects

Reframing Energy Demand: Innovation for Sustainable Heat

A new project, *Reframing Energy Demand*, led by social scientists at Edinburgh University (J.Webb, R.Bolton, D.Hawkey, M.Winskel), in collaboration with Frank Geels, Manchester, and the Centre for Innovation and Energy Demand, Sussex, has received funding from the UK EPSRC. The research will compare British, Danish and German policy and practice in energy consumption and emissions in cities in order to understand how to create efficient, affordable and sustainable heating. UK patterns of energy efficiency and heating for buildings are significantly different from many other European countries, reflecting the UK's history of cheap natural gas resources, and the low priority given to energy efficiency and environmental impacts. Other parts of Europe have established policies, technologies and businesses oriented to efficiency and low carbon supplies. We will study particular cities in England, Scotland, Germany and Denmark to analyse differences in energy performance of buildings, heating systems, and energy policy and market structures. Rather than narrow (and potentially misleading) technical and economic assessments, the research focuses on explaining societal differences in patterns of energy efficiency and demand for heating. Research aims are threefold: first, to use social studies of the technical infrastructures and market instruments which underpin energy demand and supply to develop a new analysis of energy efficiency and sustainable heat innovations; second, to develop detailed evidence about emerging innovations in selected UK and European cities, and to analyse their implications for urban energy demand to 2050; third, to identify the potential, and means, for shared learning between European cities.

For more info contact: Janette Webb (jan.webb@ed.ac.uk)

Publications

Announcement of new publications such as article, PhD theses and books

PhD thesis: Mari Martiskainen, *Developing Community Energy Projects: Experiences from Finland and the UK*. SPRU, University of Sussex (Supervisors: Gordon MacKerron and Dr Adrian Smith)

Mari Martiskainen successfully defended her thesis on 13th August 2014, for the DPhil in Science & Technology Policy Studies at SPRU, University of Sussex. The thesis compares the development of community energy in Finland and the UK. Using a theoretical framework from Strategic Niche Management (SNM) literature and empirical analysis of community energy projects and expert interviews, the thesis analyses processes linked to community energy project development in a niche space. Key findings highlight that supportive government policy discourse and availability of funding schemes can aid community energy projects. However, issues such as the role of leadership and the utilisation of pre-existing skills and tacit knowledge are often key to projects' success, but not necessarily recognised by previous literature or picked up by policy makers.

For more information, contact Mari Martiskainen (m.martiskainen@sussex.ac.uk)

Special issue on 'Energy & Society, Theory, Culture and Society, 2014,

- Urry, J., 2014, The problem of energy, *Theory, Culture & Society*, 31(5), 3-20
- Geels, F.W., 2014, 'Regime resistance against low-carbon energy transitions: Introducing politics and power in the multi-level perspective', *Theory, Culture & Society*, 31(5), 21-40
- Shove, E. and Walker, G., 2014, What is energy for? Social practice and energy demand, *Theory, Culture & Society*, 31(5), 41-58
- Tyfield, D., 2014, 'King Coal is dead! Long live the King!': The paradoxes of coal's resurgence in the emergence of global low-carbon societies, *Theory, Culture & Society*, 31(5), 59-81
- Marriott, J. and Minio-Paluello, M., 2014, The political and material landscape of European energy distribution: Tracking the oil road, *Theory, Culture & Society*, 31(5), 83-101
- Nye, D.E., 2014, The United States and alternative energies since 1980: Technological fix or regime change?, *Theory, Culture & Society*, 31(5), 103-125
- Sheller, M., 2014, Global energy cultures of speed and lightness: Materials, mobilities and transnational power, *Theory, Culture & Society*, 31(5), 127-154
- Harvey, M., 2014, The food-energy-climate change trilemma: Toward a Socio-Economic Analysis, *Theory, Culture & Society*, 31(5), 155-182
- Biel, R., 2014, Visioning a sustainable energy future: The case of urban food-growing, *Theory, Culture & Society*, 31(5), 183-202
- Clark, N. and Yusoff, K., 2014, Combustion and society: A fire-centred history of energy use, *Theory, Culture & Society*, 31(5), 203-226

Auvinen, H., Ruutu, S., Tuominen, A., Ahlqvist, T. and Oksanen, J., 2014, Process supporting strategic decision-making in systemic transitions, *Technological Forecasting and Social Change*, forthcoming

This paper introduces a process for supporting strategic decision-making and policy planning in systemic transitions related to grand challenges such as climate change. The process uses the multi-level perspective (MLP) as an underlying theoretical framework and combines various methods and tools from the fields of foresight, impact assessment, simulation modelling and societal embedding. Decision-makers such as public sector authorities and politicians are the main target group, accompanied by other stakeholders and interest groups whose involvement throughout the process is stressed. The process is presented as a stepwise methodological working process and demonstrated by a theoretical case study. The demonstration explores the vision of 'emission-free transport in cities by 2050' in the context of motorised passenger transport in the Helsinki metropolitan area in Finland. The case study serves as an example of how to implement the process and how to make case-specific selections from the methods and tools from suggested fields.

Morris, C., Kirwan, J. and Lally, R., 2014, Less meat initiatives: An initial exploration of a diet-focused social innovation in transitions to a more sustainable regime of meat provisioning, *International Journal of Sociology of Agriculture & Food*, 21(2), 189-208

Meat production and consumption as currently configured in developed countries is seen by a growing number of actors as compromising food system sustainability, with the situation likely to worsen as globally meat consumption is predicted to double by 2050. This article undertakes an initial investigation of less meat initiatives (LMIs), which have recently emerged to encourage a reduction in meat eating at a number of different sites and scales. Prominent examples include Meat Free Mondays and Meatless Mondays, which have originated in the UK and the US respectively. Drawing on the socio-technical transitions literature, the article conceptualizes the notion of eating less meat as a predominantly civic-based social innovation, focused on diet, with LMIs representing socially innovative niche projects that have the potential to facilitate a transition towards a more sustainable regime of meat provisioning. Initial empirical evidence derived from primary and secondary sources is used to examine the 'diffusion' of LMIs, both in the UK and internationally. A key conclusion is that although LMIs are both replicating and scaling-up they are not translating the idea of eating less meat in any significant way into the mainstream, principally because their

demands are too radical. A further conclusion is that while commercial organizations, the media and the state continue to promote high and unsustainable levels of meat consumption, the ability of LMLs to facilitate the diffusion of an innovative social practice – eating less meat – is likely to be limited. Nevertheless, LMLs do have the potential for raising awareness of and fostering debate about meat eating and the arguments for reducing overall levels of meat consumption.

McDowall, W., 2014, Exploring possible transition pathways for hydrogen energy: A hybrid approach using socio-technical scenarios and energy system modelling, *Futures*, forthcoming

Hydrogen remains an important option for long-term decarbonisation of energy and transport systems. However, studying the possible transition paths and development prospects for a hydrogen energy system is challenging. The long-term nature of technological transitions inevitably means profound uncertainties, diverging perspectives and contested priorities. Both modelling approaches and narrative storyline scenarios are widely used to explore the possible future of hydrogen energy, but each approach has shortcomings.

This paper presents a hybrid approach to assessing hydrogen transitions in the UK, by confronting qualitative socio-technical scenarios with quantitative energy systems modelling, through a process of ‘dialogue’ between scenario and model. Three possible transition pathways are explored, each exploring different uncertainties and possible decision points. Conclusions are drawn for both the future of hydrogen, and on the value of an approach that brings quantitative formal models and narrative scenario techniques into dialogue.

Upham, P., Kivimaa, P., Mickwitz, P. and Åstrand, K., 2014, Climate policy innovation: A sociotechnical transitions perspective, *Environmental Politics*, forthcoming

Seeking to develop a novel understanding of how climate policy innovation (CPI) emerges and spreads, we conceptualise three types of CPIs – genuinely original, diffusion based, and reframing based – and relate these to the sociotechnical transitions literature, particularly the multi-level perspective (MLP) that explains change through interaction between ‘niche’, ‘regime’, and ‘landscape’ levels. Selected climate-related transport policies in Finland, Sweden, and the UK are used to illustrate five hypotheses that connect these concepts from the MLP to particular types of CPI. ‘Original’ policy innovation may be uncommon in contexts with major sunk investments such as transport, principally because sociotechnical regimes tend to be resistant to political pressures for change originating at the same level.

Nonetheless, the MLP posits that regimes are subject to influence by pressures originating at both niche and landscape levels. Given that policy reframing is relatively common, it may offer a key entry point for CPI in the short to medium term.

Sushandoyo, D. and Magnusson, T., 2014, Strategic niche management from a business perspective: taking cleaner vehicle technologies from prototype to series production, *Journal of Cleaner Production*, 74, 17-26

Strategic niche management has been outlined as a policy approach to assist development and diffusion of cleaner new technologies. Based on a case study describing the efforts of a leading actor in the heavy vehicle industry to develop and commercially introduce hybrid-electric vehicles, this paper discusses strategic niche management from the perspective of the manufacturing firm. In particular, the paper analyses experiences from extensive field tests executed in London, tests which involved a number of different manufacturers, hybrid systems and vehicles. The scale of this technological niche added confidence and credibility to the technology and helped opening up an important niche market, which was supported by an extensive subsidy scheme. The analysis shows how the field tests and the subsidies jointly functioned as bridging policies that facilitated an important step in the market formation process. The analysis further points at a critical tension between niches and the volume-oriented business of a major vehicle manufacturer, showing how investments in new technology need to be warranted in market trends and projections of future sales and production volumes to become accepted within a vehicle manufacturer's organization.

Martin, C., 2014, Barriers to the open government data agenda: Taking a Multi-Level Perspective, *Policy & Internet*, 6(3), 217-240

A loose coalition of advocates for Open Government Data (OGD) argue that such data has the potential to have a transformative impact by catalyzing innovation across sectors of the economy and by fostering democratic participation and engagement. However, there is limited evidence to date of the OGD agenda having such a transformative impact. This article applies the Multi-level Perspective (MLP); an approach more typically applied to study transitions to a sustainable society, to explore the nature of the barriers currently faced by the OGD agenda. It argues that such barriers exist in two forms: implementation barriers and barriers to use. The empirical results presented include survey responses measuring the perceptions of U.K. OGD community members of 33 barriers to the OGD data agenda. These results are analyzed to identify implications for OGD policy and practice. The article concludes with a start at establishing a theoretical grounding for the study of barriers to the OGD agenda.

Newman, D., Wells, P. and Nieuwenhuis, P., 2014, Electric cars in the rural context: Developments in Wales, *The Journal of Sustainable Mobility*, 1(1), 65-82

This paper considers the transition from internal combustion engine cars toward electric cars, deploying case studies of the use of these vehicles within the UK. It uses socio-technical transitions theory to highlight how such new technologies break through from disparate niches into the mainstream. At the present time, perhaps academic and policy focus appears to be placed upon the prospect of electric cars fulfilling an urban niches city cars, largely in recognition of their limited range. In contrast, the paper uses a case study of various electric car applications in the Welsh countryside to suggest that existing rural niches may offer beneficial insights into the use of the technology. The paper concludes with the contention that more attention should be given to electric cars in rural settings, with a need for future research to explore the little heralded potential that seems to be promised by such niches.

Orstavik, F., 2014, Innovation as re-institutionalization: a case study of technological change in housebuilding in Norway, *Construction Management and Economics*, 32(9), 857-873

Case study can give important new insights into the systemic nature of construction innovation and the interrelationship between local innovation successes and structural forces shaping the sector. Even well-defined, modular innovations can have significant repercussions on the industry level. Recent innovation in building materials for wet rooms in Norway represents an attempt to modify only limited aspects of the established approach to housebuilding, but is made difficult by institutions and actors relying on established methods and existing building products. Institutions acting as innovation brokers can be very important for innovators. However, brokering is no panacea for promoting disruptive innovation. A broker can thwart rather than promote potentially useful but disruptive innovations. Because innovation is a re-institutionalization process, the third-party position needed for brokering effectively can be undermined, whenever a successful broker attains vested interests in the innovation outcomes it has helped bring forth. Methodologically, employing theories on technological innovation systems and on multilevel socio-technical systems shows that these are effective, complementary tools for analysis of innovation in construction. Only the latter incorporates the notion of innovation as creative destruction, and it is by drawing on this theory that the precariousness of the brokering role can be highlighted.

Pant, L.P., Kc, K., Fraser, E., Shrestha, P.K., Lama, A., Jirel, S.K. and Chaudhary, P., 2014, Adaptive transition management for transformations to agricultural sustainability in the Karnali mountains of Nepal, *Agroecology and Sustainable Food Systems*, forthcoming

Current agroecological approaches to farming have provided a limited understanding of transformations to sustainability, particularly in subsistence agrarian economies of geographically isolated regions of the world. Some suggest mitigating social and ecological impacts of modern industrial farming while others advocate for local adaptation to changes in socio-ecological systems, such as climate change, extreme weather events and biodiversity loss. This paper investigates effective pathways of fundamental transformations in technologies, livelihoods and lifestyles referred to as “agricultural sustainability transitions” in the Karnali Mountains, the most impoverished region of Nepal. Findings suggest that neither management of change referred to as transition management nor adaptation to change referred to as adaptive management effectively leads to agricultural sustainability transitions in this region of the country. An integration of these two approaches, which this paper theorizes as “adaptive transition management”, can help charter transition pathways through system innovation making new and improved technologies more accessible and adaptable to smallholders while developing local capacity to adapt to changes in agroecological systems.

Andersson, C., Törnberg, A., and Törnberg, P., 2014, Societal systems: Complex or worse?, *Futures*, forthcoming

The basic observation that we explore in this paper is simple but, we argue, rich in consequences: societal systems combine two qualities that are commonly referred to as *complexity* and *complicatedness*. We address the problem that societal systems remain recalcitrant despite the development of powerful approaches for dealing with both of these qualities. The root of this problem we identify to be that the combination between complexity and complicatedness is *emergent*; i.e. fundamentally and irreducibly different from either quality in isolation. This means that neither class of such approaches can be expected to work well on their own. But it also means that the obvious strategy of *combining* theory for complexity and complicatedness may be much more challenging than envisioned. In short, systems where complexity and complicatedness is mixed ought to be treated as a distinct class of systems. Noting a connection to what has long been called “wicked problems” we hereby outline such a class of systems that we call “wicked systems”. We introduce a simple model and heuristic and discuss some implications for theorizing and modeling.

Burch, S., Shaw, A., Dale, A. and Robinson, J., 2014, Triggering transformative change: A development path approach to climate change response in communities, *Climate Policy*, 14(4), 467-487

While climate change action plans are becoming more common, it is still unclear whether communities have the capacity, tools, and targets in place to trigger the transformative levels of change required to build fundamentally low-carbon, resilient, healthy communities. Evidence increasingly supports the finding that this transformation is not triggered by climate policy alone, but rather is shaped by a broad array of decisions and practices that are rooted in underlying patterns of development. Even so, these findings have rarely penetrated the domain of practice, which often remains squarely focused on a relatively narrow set of climate-specific policies. This article builds a conceptual framework for understanding the dynamics of community-level development path transformations that may both dramatically reduce GHG emissions and significantly enhance community resilience. This framework illuminates eight critical enablers of innovation on climate change, each of which is illustrated by compelling examples of community-level experimentation on climate change across the province of British Columbia, Canada. It is concluded that community-based climate (or sustainability) policy might be more likely to trigger development path shifts if it employs a longer time horizon, recognition of adaptability and feedbacks, integrated decision making, and systems thinking.

Wittmayer, J.M. and Schöpke, N., 2014, Action, research and participation: Roles of researchers in sustainability transitions, *Sustainability Science*, forthcoming

In sustainability science, the tension between more descriptive–analytical and more process-oriented approaches is receiving increasing attention. The latter entails a number of roles for researchers, which have largely been neglected in the literature. Based on the rich tradition of action research and on a specific process-oriented approach to sustainability transitions (transition management), we establish an in-depth understanding of the activities and roles of researchers. This is done by specifying ideal-type roles that researchers take when dealing with key issues in creating and maintaining space for societal learning—a core activity in process-oriented approaches. These roles are change agent, knowledge broker, reflective scientist, self-reflexive scientist and process facilitator. To better understand these ideal-type roles, we use them as a heuristic to explore a case of transition management in Rotterdam. In the analysis, we discuss the implications of this set of ideal-type roles for the self-reflexivity of researchers, role conflicts and potentials, and for the changing role of the researcher and of science in general.

Di Lucia, L. and Ericsson, K., 2014, Low-carbon district heating in Sweden – Examining a successful energy transition, *Energy Research & Social Science*, forthcoming

District heating (DH) systems may contribute to reducing the use of fossil fuels for heating purposes since they enable the use of waste heat and facilitate the use of renewable energy sources. This paper focuses on the transformation of the Swedish DH systems with regard to energy supply in 1960–2011. Swedish DH production was completely dependent on oil until the late 1970s, while today it is dominated by biomass and other renewable energy sources. The objectives of this paper are to describe and explain the fuel transition in the context of the main events that have characterized the development of the Swedish DH sector. For this purpose, we employ theories and approaches grounded in the literature on systems of innovations, especially the Multi-Level Perspective. The study shows that the transition involved a series of steps. Initiated by the oil crises in the 1970s the oil-based regime collapsed rapidly, while the growth of the biomass-based regime was a steered process governed by actors and supported only by external events. The lessons learned from the transition towards low-carbon and more sustainable DH systems in Sweden could be useful in the challenging task of steering future energy transitions in other countries and sectors.

Gosens, J., Lu, Y., and Coenen, L., 2014, The role of transnational dimensions in emerging economy Technological Innovation Systems for clean-tech, *Journal of Cleaner Production*, forthcoming

The ‘Technological Innovation System’ (TIS) framework and its system functions have become a popular analytical tool for the study of clean-tech innovation. There is increasing attention for the role of emerging economies in global clean-tech innovation, but the applicability of TIS to emerging economies cases is not entirely straightforward. A key issue is the limited geographical considerations, in particular transnational dimensions in TIS, whereas earlier perspectives on innovation in emerging economies have stressed the role of such transnational dimensions. This paper elaborates transnational TIS actor-networks and institutions, categorizes these in relation to TIS functions, and describes their potential to induce or block TIS development in emerging economies. We draw on insights from the perspectives of National Learning Systems, International Technology Transfer, and Global Production Networks for this purpose. We conclude that the potential effects of these transnational dimensions may be accurately grasped by the existing list of system functions, lending credence to its further application of the TIS framework on emerging economy case studies. Policy makers in emerging economies should recognize these transnational dimensions and seek to optimize their potential effect on domestic TIS development, taking in to consideration a realistic assessment of its role in the global TIS.

Papachristos, G., 2014, Towards multi-system sociotechnical transitions: why simulate, *Technology Analysis & Strategic Management*, 26(9), 1037-1055

A number of research frameworks have been developed for studying sociotechnical transitions. These are complex phenomena, particularly those involving multi-system interactions. Given these characteristics, the paper discusses the challenges in studying transitions solely through inductive inference methods. It argues that transition research has reached a point where taking the next step should include modelling and simulation as part of the standard methodological exploratory toolkit for studying the intensity, nature and timing of system interaction that lead to transitions and for producing timely and robust policy recommendations.

Bell, M., Carrington, G., Lawson, R. and Stephenson, J., 2014, Socio-technical barriers to the use of energy-efficient timber drying technology in New Zealand, *Energy Policy*, 67, 747–755

This study of industrial energy behaviours identifies barriers to the use of energy-efficient drying technology in the New Zealand timber industry, and explores these barriers through the “energy cultures” lens. Vented kiln dryers were preferred by larger firms and heat pump kiln dryers were used by smaller firms. Although few firms could specify all their costs, we found no significant differences in the average operating costs, drying costs or commercial success of the larger and smaller firms. We found that socio-technical barriers create “energy cultures” at the level of both the firm and the sector, supporting the dominance of vented kiln dryers. The prevailing technologies, practices and norms at the sector level strongly support vented kilns, the status quo being embedded in the socio-technical context, hindering technological learning, improved energy efficiency and innovation. Influential stakeholders in the industry were thus part of, and locked into, the industry-wide energy culture, and were not in a position to effect change. We conclude that actors external to the prevailing industry energy culture need to leverage change in the industry norms, practices and/or technologies in order to reap the advantages of energy-efficient drying technology, assist its continued evolution and avoid the risks of path-dependency.

Vangansebeke, P., Gorissen, L., Nevens, F. and Verheven, K., 2014, Towards co-ownership in forest management: Analysis of a pioneering case ‘Bosland’ (Flanders, Belgium) through transition lenses, *Forest Policy and Economics*, forthcoming

Forest management in Western-Europe is evolving towards multifunctionality and higher levels of sustainability. Co-owned forest managing models, where different owners collaborate and forest users participate however, are still rather an exception of a rule. Bosland (literally forest-land) in Flanders (Belgium) is a statutory partnership of several public forest owners and stakeholders, managing an area of about 22,000 ha of previously fragmented forest relicts. By looking at this case through transition lenses we describe a pioneering case in forest management where a new way of management is adopted more geared towards management for coherence across multiple ecosystem services and across a multitude of stakeholders. By use of a learning history we were able to reconstruct the change trajectory of Bosland. Analysis of this change trajectory through transition lenses aided to identify essential key features in which Bosland differs from ‘management as usual’ approaches: (i) a distinctive paradigm shift towards management for coherence; (ii) a long term vision that informs and guides the short-term action agenda; (iii) a bottom up approach focusing on participation and co-creation. The methods used and lessons learnt in Bosland can thus be highly interesting for the wider community involved in forest and nature management.

Wesseling, J.H., Farla, J.C.M., Sperling, D. and Hekkert, M.P., 2014, Car manufacturers' changing political strategies on the ZEV mandate, *Transportation Research Part D: Transport and Environment*, forthcoming

We ask how incumbent car manufacturers and their political coalitions changed their political strategy with respect to the Californian zero emission vehicle mandate over the period 2000–2013. Building on the Corporate Political Activities literature we conceptualize firms' political strategies and their underlying tactics and actions. Our longitudinal case study builds on a dataset comprising governmental reports, documents, and public hearing transcripts, letters from industry, and complementary interviews with stakeholders. We find that car manufacturers became less defensive over time and more proactive and compliant in their political strategies towards the zero emission vehicle mandate. Car manufacturers' coalitions on the other hand, remain relatively defensive in their political actions as they continue to do the manufacturers' "dirty work". We provide insights in the Corporate Political Activities used to influence policymakers. To deal with industry opposition to policy interventions, our research suggests that policy makers might focus their interaction with industry on individual firms instead of industry associations, craft policies that stimulate competition between firms to break apart their closed industry front, and complement technology-forcing policies with demand-pull initiatives.

Kolk, A. and Tsang, S., 2014, Co-evolution in relation to small cars and sustainability in China: Interactions between central and local governments, and with business. *Business & Society*, forthcoming

This article explores how the institutional context, including central and local governments, has co-evolved with business in relation to small cars and sustainability. This is a very relevant issue for business and society in view of the environmental implications of the rapidly growing vehicle fleet in China, the economic importance attached to this pillar industry by the government, and citizen interest in owning and driving increasingly larger cars. The interactions between different levels of government, and with business (both domestic and foreign-invested) in countries with a large role for the state is a novel area of study in the business-society area and a complex one given the multitude of objectives and interests involved in industry competitiveness, economic development, energy security and sustainability. The article shows that the central government has adopted policies to further the production and use of small cars, which it perceives as serving environmental, economic and social goals. Concurrently, however, many local governments imposed restrictions on small cars and have, implicitly or explicitly, favored larger cars. There seems to be a clear linkage to municipal ownership of those domestic automobile companies which, via joint ventures with foreign firms, focused more on larger cars. By adopting a co-evolutionary approach focused on macro-level interactions, the case helps to shed some more light on concrete sustainability challenges, and broader on government-business interactions in a highly institutionalized setting, contributing insights on issues that have remained underexposed in business and society research.

Kolk, A., 2014, The role of international business in clean technology transfer and development. *Climate Policy*, forthcoming

While research has generated useful very insights, usually at the macro level, regarding the multi-faceted nature of environmental innovation and regulation, the characteristics and drivers peculiar to international companies have remained underexposed in the policy-related literature on clean technology transfer and development. This article aims to help open the 'black box' of business, also as input for future policy-making, by discussing aspects that influence corporate responses: sector-specific and company-specific peculiarities as well as those related to country contexts (both origin countries and host countries to companies). Most of the climate-related investments in 'developing' countries turn out to have been geared to a few emerging economies, generally involving established technologies with limited transfer, and a major role for developed-country utilities, particularly from Europe. Despite these limitations, there is a base with experience being built up, and a

potential for extension to lesser-developed areas, but that requires market co-creation by joint business and governmental efforts. As viable business models are largely lacking, the article suggests three main modalities, ranging from fully commercial to primarily publicly funded, involving different types of actors and countries. Gearing policies more toward corporate realities and reaping the international momentum of sustainable energy might also further climate goals.

Fuchs, G. and Hinderer, N., 2014, Situative governance and energy transitions in a spatial context: case studies from Germany, *Energy, Sustainability and Society*, 4, 16

While the traditional form of electricity generation and supply is based on centralized structures with large-scale power plants, the objective of a strongly decentralized form of energy supply is increasingly becoming of importance. Sustainability-oriented energy transitions are relying on various sorts of renewable energies coupled with energy efficiency initiatives. In the current existing regulatory and market frameworks in Germany and elsewhere, important technical and institutional innovations for energy transitions were and are being developed, tested, and brought to application on regional and local levels. Regions, cities, and villages experimenting with socio-technical innovations and aiming to implement new concepts have to develop governance structures under high uncertainty. These governance structures mirror space-specific social, political, technological, and economic constellations. The present paper introduces an analytical approach for studying emergent forms of governance and uses four cases from Germany to apply the approach. Research is based on a comparative case study research design, using primarily expert interviews and document analysis as data sources. The cases demonstrate that sustainable energy transitions are driven forward by a variety of actors with different aims and interests, culminating in the development of space-specific technological mixes and situative governance structures. Sustainable energy transitions are not following a master plan or are coordinated on a national level. The upper political levels and external events pose severe constraints for the implementation of local transition initiatives. Future research should further aim to highlight and analyze the contentious character of local energy transitions.

Wakiyama, T., Zusman, E. and Monogan, J.E., 2014, Can a low-carbon-energy transition be sustained in post-Fukushima Japan? Assessing the varying impacts of exogenous shocks, *Energy Policy*, 73, 654–666

In the aftermath of the Fukushima nuclear crisis, Japan began contemplating energy policy reforms that drew inspiration from low-carbon research. This article focuses on a question central to advancing low-carbon research in Japan and elsewhere: namely, how does an exogenous shock affect the onset, magnitude, and permanence of changes in electricity consumption? The article employs intervention analysis with an autoregressive moving average (ARMA) model to answer this question. The data analysis reveals that post-Fukushima electricity use underwent a sudden, significant, and sustained reduction across Japan. The shock not only affected the Tokyo Electric Power Company (TEPCO) coverage area but the more distant Kansai Electric Power Company (KEPCO) coverage area. Large electricity users responded with an immediate and significant reduction in electricity consumption that rebounded to below pre-crisis levels; households responded more gradually with no rebound. Two of the more interesting results from the data analysis – the persistence in reductions in the more distant KEPCO coverage area and the rebound among large users – are then explained with a review of survey data and policy trends. Overall the quantitative and qualitative evidence suggests that an exogenous shock may give rise to a reduction in electricity consumption but cannot sustain a low-carbon transition.

Jackson, M., Lederwasch, A., and Giurco, D., 2014, Transitions in theory and practice: Managing metals in the circular economy, *Resources*, 3(3), 516-543

Transitioning from current resource management practice dominated by linear economic models of consumption and production, to circular models of resource use, will require insights into the stages and processes associated with socio-technical transitions. This

paper is concerned with transitions in practice. It explores two frameworks within the transitions literature—the multi-level perspective and transition management theory—for practical guidance to inform a deliberate transition in practice. The critical futures literature is proposed as a source of tools and methods to be used in conjunction with the transition frameworks to influence and enable transitions in practice. This enhanced practical guidance for initiating action is applied to a specific context—transitioning the Australian metals sector towards a circular economy model. This particular transition case study is relevant because the vision of a circular economy model of resource management is gaining traction internationally, Australia is significant globally as a supplier of finite mineral resources and it will also be used in a collaborative research project on Wealth from Waste to investigate possibilities for the circular economy and metals recycling.

Sergent, A., 2014, Sector-based political analysis of energy transition: Green shift in the forest policy regime in France, *Energy Policy*,

This article examines energy transition political process from a sector-based approach, through the analysis of recent shift in the French forest policy regime. We demonstrate that, since 2007, energy transition policies have led to a harvesting turn within the French forest policy framework, meaning that priority is given to wood mobilisation, mainly for biomass uses. In addition, our findings suggest that the political authority wielded by the state over forest policy has shifted from forest administrative services to energy agencies and local authorities. Finally, we show that, although implementation of the harvesting turn is a cause of sectoral and inter-sectoral tensions, energy transition challenge also contributes to a process of (re)institutionalisation of mediation relationships among forestry stakeholders and wood-based industries representatives. The article concludes by arguing that sectors should retain relevant institutional frameworks for actors when choosing political arrangements required for implementing energy transition policy.

Carvalho, L., 2014, Smart cities from scratch? A socio-technical perspective, *Cambridge Journal of Regions, Economy and Society*, forthcoming

This paper argues that contemporary smart city visions based on ITs (information and telecommunication technologies) configure complex socio-technical challenges that can benefit from strategic niche management to foster two key processes: technological learning and societal embedding. Moreover, it studies the extent to which those processes started to unfold in two paradigmatic cases of smart city pilots ‘from scratch’: Songdo (South Korea) and PlanIT Valley (Portugal). The rationale and potentials of the two pilots as arenas for socio-technical experimentation and global niche formation are analysed, as well as the tensions and bottlenecks involved in nurturing socially rich innovation ecosystems and in maintaining social and political support over time.

Haley, B., 2014, Promoting low-carbon transitions from a two-world regime: Hydro and wind in Québec, Canada, *Energy Policy*, forthcoming

Technical synergies exist between wind energy and hydroelectricity because conventional hydro plants can effectively store wind in their reservoirs. However, the presence of low-cost, low carbon hydro resources could also inhibit wind energy development. This paper examines the tension between wind-hydro complementarity and competition through a case study of Québec, Canada. The case highlights that debate over the societal conception of the hydroelectric system, or “regime”, and its potential to enable wind, creates different innovation pathways. The paper calls attention to the value of shielding and nurturing renewable energy niches to create transformative pressures that activate the complementary potential of existing technologies. To maintain momentum a wind-hydro development block will need to expand towards incorporating new technologies and geographies.

Van Geenhuizen, M. and Ye, Q., 2014, Responsible innovators: open networks on the way to sustainability transitions, *Technological Forecasting and Social Change*, forthcoming

This paper elucidates ways in which small high-technology companies through using open knowledge networks may contribute to sustainability transitions. The analysis focuses on young university spin-off companies as an important channel for bringing responsible innovations from university to market while it connects the micro-level with the meso-level of networks supporting socio-technical system changes. A conceptual reflection on responsible innovation, openness in knowledge networks and socio-technical systems' transitions, is followed by an empirical research. Based on a hundred companies and four case studies, the results indicate that responsible innovation is one of the drivers of openness in knowledge networks. However, partner diversity in openness tends to have a negative effect on growth of the companies. Our preliminary evidence indicates that focus (product–market) and selectivity in the choice of partners connected to professional (venture) capital, market access, credibility and complementary assets are highly relevant when it comes to influencing change in socio-technical systems. A discussion of the implications of this study and suggestions for future research close the paper.

Sushandovo, D. and Magnusson, T., 2014, Strategic niche management from a business perspective: Taking cleaner vehicle technologies from prototype to series production, *Journal of Cleaner Production*, 74(1), 17-26

Strategic niche management has been outlined as a policy approach to assist development and diffusion of cleaner new technologies. Based on a case study describing the efforts of a leading actor in the heavy vehicle industry to develop and commercially introduce hybrid-electric vehicles, this paper discusses strategic niche management from the perspective of the manufacturing firm. In particular, the paper analyses experiences from extensive field tests executed in London, tests which involved a number of different manufacturers, hybrid systems and vehicles. The scale of this technological niche added confidence and credibility to the technology and helped opening up an important niche market, which was supported by an extensive subsidy scheme. The analysis shows how the field tests and the subsidies jointly functioned as bridging policies that facilitated an important step in the market formation process. The analysis further points at a critical tension between niches and the volume-oriented business of a major vehicle manufacturer, showing how investments in new technology need to be warranted in market trends and projections of future sales and production volumes to become accepted within a vehicle manufacturer's organization.

Bettini, Y., Brown, R.R., de Haan, F. and Farrelly, M., 2014, Understanding institutional capacity for urban water transitions, *Technological Forecasting and Social Change*, forthcoming

Transitions management (TM) is emerging as an approach to governing complex sustainability problems. Critiques point to the need to understand dynamics of system change, particularly, with regard to actor agency at micro and meso scales. This paper begins to address this scholarly gap by first, developing an analytical framework of the institutional context of a transition that recognizes forms of agency. Second, a method to apply the framework to empirical cases of urban water socio-technical systems to map their institutional context is developed. The results revealed: i) ways to identify problematic features of current systems and underlying cognitive and normative frames, to assist with envisioning and transition pathway development, ii) a method of system analysis that can target leverage points for strategizing transitions agendas and experiments, and iii) a dynamic description of the system to assist with evaluating TM interventions and monitoring transitions. By providing a systems analysis cognizant of contextual dynamics and targeted to the knowledge needs of TM activities, this analytical tool shows promise for improving TM through further empirical application and research.

Vinkhuyzen, O.M. and, Sylvia I. Karlsson-Vinkhuyzen, S.I., 2014, The role of moral leadership for sustainable production and consumption, *Journal of Cleaner Production*, 63, 102-133

The principles, the actions and the vision that form the basis for sustainable production and consumption (SCP) are not unknown, but there is a considerable gap between knowledge and action, and behavioural incentives are not sufficient for system change. In this paper we explore a key missing ingredient in the work to promote SCP, leadership that is underpinned by ethical dimensions in its purpose, style and motivation. We show that current leadership styles are insufficient to generate the will and the human resources required for building SCP. The core of the paper is a comparative theoretical and ethical analysis of three leadership models designed to address complex adaptive challenges and with varying degrees of ethical dimensions incorporated. This enables us to evaluate the added value of incorporating ethical dimensions in leadership models and training. We analyse in more depth the most promising of the three models in this regard, the moral leadership framework developed by Eloy Anello and others at Nur University in Bolivia. We conclude that Anello's model provides a number of additional elements usually neglected in leadership models but that appear essential in generating the necessary vision, understanding and motivation to work for SCP. The evaluation of trainings in the moral leadership framework made so far indicate its potential for supporting transformational change, individual and collective, change that is essential in the promotion of sustainable production and consumption.