Transition Paper 1

Felix Spira, Niki Frantzeskaki, Derk Loorbach:

An analytical framework to understand the scaling of transition initiatives

In recent years, civil society, businesses and governments have launched and established numerous initiatives to address wicked sustainability challenges in city-regions. Those initiatives include energy cooperatives, car sharing schemes, community currencies or transition towns (Seyfang & Haxeltine 2012; Seyfang & Longhurst 2013; Ornetzeder and Rohracher 2013; Feola & Nunes 2014). From a transition studies perspective, the establishment of these initiatives can be described as the pre-development phase of a sustainability transition, given the diversity of experiments that they represent to organise food, energy and transport systems in more sustainable ways (Grin, Rotmans & Schot 2010). A critical question to ask is: how can these initiatives act as catalysts to move towards more sustainable societal systems?

Accelerating the transition is important in light of the short-time frame humanity has to find ways to live within the ecological boundaries of this planet (Rockström et. al. 2009; WBGU 2011). Scaling the impact of transition initiatives beyond their current scale-levels and domains is assumed to be a critical element for acceleration. Scholars within the field of transition studies have extensively focused on how to establish transition initiatives; however the scaling process and agency dynamics have so far been understudied (Markard, Raven & Truffer 2012). This is a critical omission as the impact of transition initiatives does not scale naturally (Bradach 2003; Smith 2007). As a result, these initiatives and their innovations might remain ‘stuck in the niche’, despite their potential to transform the larger system (Uvin, Jain, Brown 2000).

This paper presents an analytical framework to help us better understand what we mean by scaling the impact of transition initiatives in city-regions. The paper answers three questions: How do we see transition initiatives in context? What are their transformative actions? What do we mean by scaling? The development of the framework was informed through a literature review, drawing on the insights of scaling development projects, social innovations, social entrepreneurship, non-profit organisation and grassroots innovations.
Figure 1 depicts how we see a transition initiative in context. The transition initiative operates within a local system that can be defined through geographic and thematic boundaries (Bloom and Dees 2008; Meadows 2010). The external context to this local system is characterized by other systems, leading to a nested hierarchy of different sub-systems that together form the larger societal system (De Haan 2010; Frantzeskaki 2011). Different actors and structures manifest the local system the initiative operates in (Van der Brugge 2009). The initiative engages and experiments with alternative models - artefacts, activities or approaches - to challenge and replace unsustainable cultures, structures and practices within the local system. Scaling the impact of these alternatives is assumed to be a critical step towards accelerating the sustainability transition in city-regions.

Figure 1 – Transition initiative in context

Figure 2 specifies the types of alternative models that transition initiatives experiment and engage with. Following the core conceptualisation that transitions are radical fundamental changes in cultures, structures and practices (Frantzeskaki and De Haan 2009; Frantzeskaki, Loorbach and Meadowcroft 2012), we define three distinct models that manifest transformative impact of initiatives in their context: artefacts (as local manifestation of structures), activities (as local manifestations of practices) and approaches (as local manifestations of cultures). Artefacts comprise the physical products and tools that actors can immediately perceive with their sense and utilize to conduct a specific practice. Activities describe the planned and interlinked set of practices that actors execute to achieve a goal within a specified temporal and spatial context. Approaches refer to the laws, organisational forms and principles that guide the practices of actors. This description of artefacts, activities and approaches illustrates that these exist within a nested hierarchy.

Figure 2 – Three types of alternative models the initiatives engage and experiment with
Figure 3 illustrates three types of scaling that we deem to be most relevant for a transition initiative in a city-region. Scaling-out refers to the most common type of scaling, as it describes increasing the impact of an initiative, by moving into other geographic contexts, addressing other thematic issues or target groups (Alvord et al 2004; Carter and Currie-Alder 2006). This is achieved through a horizontal process in which the initiative either organises the scaling itself or works together with institutions and organisations at the same scale-level. From the perspective of local initiative, scaling up refers to the outreach of the initiative to institutions at higher scale levels (Lovell, Mandondo and Moriarty 2002; Vreugdenhil et al 2010). For example for a locally based initiative, in a process of scaling up, it will reach out to higher-level institutions, such as national governments or international NGOs, to increase the impact of the models. Scaling-deep describes the process of further embedding the transformative impact of an initiative within existing geographic contexts, by addressing new thematic issues or target groups, or simply by serving existing target groups in a better way (Bloom and Chatterji 2009). These types of scaling present different ways for an initiative to increase its impact.

![Figure 3 – Three types of scaling impact](image)

This analytical framework presents a first step towards a theory describing the scaling dynamics of transition initiatives in city-regions that can inform new governance mechanisms to steer the scaling process. Discussing a first version of the framework in the workshop would help us to further refine it.


Marco Pütz:
Reframing regional governance towards sustainability transitions: Lessons from environmental governance

The paper proposes a framework to reframe regional governance towards sustainability which is based on concepts and findings currently under debate in the environmental governance literature. The guiding research question addressed in the paper is, how to reframe regional governance arrangements in order to develop more sustainable regions. The proposed framework is based on the assumption that both governance and sustainability are about change and both can be actively changed. In that respect, we usually refer to governance as new governance and we refer to sustainability as transformation, new trajectories or processes of bouncing forward (instead of regeneration or bouncing back) (Shaw 2012).

The core elements of the proposed framework to reframe regional governance are on the one side two well-known and established features of regional governance: (1) the involvement of new actors, especially non-state actors, (2) the increasing role of new or modified institutions (rules, regulations), especially informal, market-based or network-like modes of coordination. On the other side, two rather new features of regional governance can be identified which are prominently discussed in environmental governance as potential drivers or facilitators for sustainability.

First, scale and the role of rescaling as a response to problems of fit can be regarded as a key element of regional governance towards sustainability. Problems of fit appear with the use of natural resources or ecosystem and constitute a common feature of environmental governance. Problems of fit can comprise functional, temporal, and spatial dimensions (Folke et al. 2007, Galaz et al. 2008). Generally, problems of fit refer to the mismatch between the geographical extent of an environmental issue and the territorial scope of institutions affecting its governance. In order to tackle this mismatch the idea is to create institutional arrangements which are tailored to fit to the geography of the environmental issue. Dealing with problems of fit and transforming institutional arrangements involves rescaling. The congruence of environmental governance with the natural or ecosystem boundaries or biophysical properties of the environmental issue has been termed spatial fit (Young 2002). The concept of spatial fit has a long history in natural resource management, for instance in fisheries or water resources management. But scalar thinking and the concept of rescaling have not explicitly been applied to urban and regional development, yet.

Second, science-policy interactions can be regarded as another key element of regional governance towards sustainability. Again with reference to environmental governance challenges (e.g. climate change, biodiversity), creating and working at science-policy interfaces appears to be relevant for sustainable regions because uncertainties of future developments are taken into account. Further, science-policy interfaces serve as knowledge producers and managers, as boundary organizations to provide evidence-based decision-making, and as moderators to negotiate and balance sustainability priorities. The proposed framework and its key elements to reframe regional governance towards sustainability are illustrated with examples from regional development in Switzerland.
Tassilo Herrschel:

**Transition to Smart City-Regional Governance – Sustainability as Post-Fordist Agenda?**

With a neo-liberal agenda of economic competitiveness continuing to dominate much of political debates and agendas across spatial scales, finding and operationalising the ‘right’ scale of governance to reconcile seemingly conflicting policy objectives – here, competitiveness and sustainability – has become a major challenge to governance principles and practices. This paper discusses ‘smartness’ as a particular quality of governance - in the challenging (and conflictual) setting of city regions – to reconcile competing interests, and their institutional and geographic manifestations, as they develop. Drawing on the concept of ‘smart growth’, the paper argues that a post-modern order and way of ‘doing’ city-regional policy may emerge that brings together Fordist elements of governing with post-Fordist, even post-modern, practices and arrangements. This marks in itself a transition process.

Markus Egermann, Florian Kern, Rachael Durrant, Niki Frantzeskaki, Felix Spira, Hans-Martin Neumann:

**A conceptual framework to investigate local sustainability transition initiatives in European city-regions**

The question of how transformative change of societal systems towards environmental sustainability can be achieved is widely discussed in the transitions literature (Grin, Rotmans et al. 2010; Markard, Raven et al. 2012; Smith, Voß et al. 2010). Previous research has identified local sustainability initiatives as one possible driving force to accelerate transition processes (Seyfang and Smith 2007; Hodson and Marvin 2010; Seyfang 2010). A first scan of the initiatives in five city regions (Brighton, Budapest, Dresden, Flanders and Stockholm) shows a diverse picture of small and larger initiatives that are driven by different types of actors (e.g. bottom-up, grassroots community initiatives, multi-actor city-partnerships as well as local authority driven activities) and motivated by a range of issues in multiple domains such as energy, food or the built environment. We argue that these initiatives offer interesting starting points for sustainable city-regional development since they aim to, or often have already implemented, alternative practices and routines that contribute to environmental sustainability. The question of whether, and if so how, these existing initiatives can be successfully coupled and rescaled in order to accelerate transition processes on a city-regional scale or beyond, remains open. In any case, such a process will be fostered or hindered by the city-regional governance patterns as well as by the subnational, national, European and Global governance contexts in which the city region and its initiatives are embedded.

We argue that research on the coupling and rescaling of local sustainability transition initiatives in city regions needs to pay attention to (1) the interdependencies between different initiatives, as well as to (2) their embeddedness in specific city regional governance patterns, and (3) their position within multi-level territorial governance contexts that span across different spatial scales. Latter is especially meaningful from the perspective of transition managers, given that political actors and public administrations are, due to their institutional embeddedness, territorially-oriented, and act on a territorial power base (Fürst 2003: 442).
Against this backdrop the research project on ‘Accelerating and Rescaling Transitions to Sustainability’ (ARTS) is one of the few research initiatives that explicitly seek to re-conceptualise knowledge from previous transition research with respect to a multi-level territorial governance perspective. Under this view, local sustainability transition initiatives are not understood as ‘niche’ activities that challenge the existing ‘regime’, which would be in line with dominant perspectives in the transition literature. Rather, they are understood as activities which emerge and operate within specific city regional governance patterns and are embedded in a wider multi-level territorial governance context (i.e. subnational, national, European and global scale) (see Hodson and Marvin 2010).

The conceptual framework we present in this paper distinguishes between ‘local sustainability transitions initiatives’ (=primary unit of analysis), which emerge and act in a ‘city regions’ (=case) and which are embedded in a ‘multi-level territorial governance context’ (=context) — implementing in this way an ‘embedded multiple-case design’ (YIN 2008: 40).

The investigation into local sustainability transition initiatives, symbolised as circles of different sizes (=spatial focus) and different colours (=domains) (see Figure 1), is informed by transition theory and focuses on their historic development, current dynamics and future prospects. While some of these initiatives may be connected to each other (overlapping circles), others may run independently. In some cases one initiative may constitute the frame for further smaller initiatives (circles within circles). One focus of our research will be on the interplay between the different initiatives, whilst another will be on the influence of the different city-regional governance patterns. All five cases are embedded in different subnational/national contexts (UK, Hungary, Germany, Belgium, Sweden), while they share the same European and global contexts. Hence a third focus of our research is to investigate the influ-
ence of the different governance levels on the local sustainability transition initiatives, from subnational/national to global. This research will focus on existing policy targets, visions, programs, instruments and legal frameworks.

However, the proposed conceptual framework elaborated in Figure 1 can only present a static picture of the relationships between different concepts. Therefore it is important to stress that the analysis of transition initiatives and their contexts will especially focus on the dynamics over time, as acceleration is a process. We do this by building on the structure-agency idea of Giddens, in that we conceptualise initiatives as being shaped by their multi-level contexts, but also able to exert their agency to transform these contexts (e.g. shaping local rules and physical surroundings). Building on the emerging ‘politics of transitions’ literature (Shove and Walker 2007; Meadowcroft 2009; Scrase and Smith 2009; Kern 2012; Smith and Raven 2012; Hess 2014), we suggest that for local initiatives to be able to contribute to the acceleration of sustainability transitions, actors need to build (political) coalitions and mobilise resources (e.g. people, investment), as well as demonstrating the legitimacy of alternative, more sustainable practices and configurations. Based on these analytical categories, the analysis will trace the interactions between initiatives and interactions with their contexts, showing how these dynamics affect the acceleration of sustainability transitions in city-regions.

Ultimately, we expect that this conceptual framework will help us to examine the relationships between the sustainability transition initiatives in the different city regions, as well as providing a starting point for studying the impact of city regional governance patterns and multi-level governance contexts on the development of initiatives and their capacity to accelerate sustainability transitions in European city regions.


MARKARD, JOCHEN; RAVEN, ROB; TRUFFER, BERNHARD (2012): SUSTAINABILITY TRANSITIONS: AN EMERGING FIELD OF RESEARCH AND ITS PROSPECTS. RESEARCH POLICY. VOLUME 41. PAGES 955-967.


Fabio Hernandez-Palacio:

Transition Theory and the sustainable city. Multilevel perspective as a tool to design sustainable urban transitions

This paper has the purpose of relating two different concepts: the one transitions theory, particularly technological transitions, and the other is the sustainable city. The idea of transition, which is the transit or change from one state to another, has been an issue in social sciences for several decades in diverse fields. The general assumption of technological transitions theory is that technologies create path dependencies that consolidate social regimes and institutions (such as markets, regulations, beliefs or social habits) around certain technological developments (for instance the gasoline cars, the internet or the electricity grid). Thus, technological changes demands transformation in the social institutions and beliefs in a process that goes from the stability of the old regime to the instability of the transition. The transition period ends when a new stable social regime is attained with a new system around the new technological development. As this is a process in which society and technology are involved simultaneously, it has been called sociotechnical transition.

The sustainable city is a widespread ideal of city that has gained a central position in contemporary urban policy. The need to face climate change by reducing greenhouse gas emissions is one of the central reasons behind the diffusion of sustainable city policies. One of the most emphasised aims of the sustainable city in developed countries is the need of reducing greenhouse gas (GHG) emissions. Being the transport one of the main producers of this kind of gases, there has been much emphasis in improving technology to be cleaner, but also in reducing the use of cars. This reduction has been addressed by diverse regulatory instruments, but also in the planning and design of cities. The compact city has been adopted as the model for the sustainable city. The achieving of urban compaction has been tackled by planning and urban design strategies such as the promotion of mixed-use developments, urban renewal and densification, restrictions to city expansion into agricultural land, the strengthening of public transport systems, the reduction of road surface for cars in favour of pedestrians and bikes, among others.
The application of such strategies has been problematic. The social acceptability of higher urban densities appears as a central issue. But it is not the only one. Cities are large and complex systems in which many other systems are embedded. Instances of these systems are building stocks, several infrastructure networks, transportation, markets, social services, government and administration, and sociocultural systems. The city form is determined by the interactions among these different organisations and the interests that rule them. Thus, the materialisation of the goals into facts is a long-term process in which emerging issues and unexpected trajectories arise. In regards to urban sustainability some authors claim that much attention has been paid to performance but decision making and governance has been neglected. Thus finding methods to describe the complexity of decision making in contemporary city, given the multitude of actors and the different level where they act, seems a key issue in addressing sustainable urban transitions.

The main purpose of the text is to explore the concept of ‘transition theory’ and its relevance in the implementation of ‘sustainable city’ strategies. The question guiding the development of the text is: How Transition Theory and multilevel perspective approach used in technological transition can be applicable in the implementation of sustainable urban transitions. In doing this, it is necessary to explore the concepts of Transition Theory and Sustainable City. Accordingly, the paper is organised in four parts. The first, Introduction, presents the general problem; the second, Defining the concepts: Transition Theory and the Sustainable City is a review of both of the concepts. The third, On transition theory and the implementation of sustainable city strategies is a discussion of the relation between transition theory and sustainable city strategies. And fourth, Conclusions presents the findings and the synthesis of the text.

This text argues that transition theory, particularly multilevel perspective, offers a comprehensive approach to understand the governance of sustainable urban transitions. Cities are highly dynamic systems, always in transformation. In this permanent evolution are involved a multitude of actors, operating in different levels. However, the sustainable transitions in the contemporary city do not seem to occur outside the regime, in exogenous niches that threat the exiting regime with radical innovations. Much of the sustainable city policies are promoted by urban governments by means of projects, strategies, regulation and incentives. This may be a significant difference with other transitions in sociotechnical systems and thus, may imply a different approach in regards of the relationship between niche and regime. The paper studies this difference and explores an alternative way to connect multilevel perspective and sustainable city transitions.
Paper Session 2, Strand A

Eike W. Schamp:

Path creation as a governance problem of coevolution of supply and demand: The case of battery electric vehicles (BEV) in France

In recent years, electric propulsion has become an important issue in sustainable transport technologies. It is supposed to reduce environmental pollution that still is considerably high through the use of internal combustion engines (ICE) in automobiles, particularly in urban traffic. In the last few years, electric vehicle technologies have been pushed forward, driven by climate change mitigation and industrial policies of governments, competitive strategies of car manufacturers and shifting perceptions in civil society. However, technologies are still uncertain, markets not yet defined and customer’s acceptance fairly limited. The technological trajectory still is at its beginnings, it is nascent.

This paper attempts to shed light on the process of early formation of a new trajectory in a sustainable technology, the battery electric vehicle (BEV) for individual use. In evolutionary terms, the emergence of a new technological path begins with a phase of “ferment” which is characterized by major heterogeneities in technology and high uncertainties and risks for actors both on the supply side and the demand side. The technology still has to become “locked-in” if it is to leave a small niche and become “dominant” in urban traffic. Governance of this early formation process also is heterogeneous and ambiguous. In a geographical perspective, path creation follows different spatial logics on the side of knowledge creation in technologies, production of the BEV and, last but not least, the use of BEV. Governance of the “ferment” is unclear also because this phase is essentially shaped by the co-evolution of supply and demand in the nascent technological trajectory. Both sides of the trajectory are clearly determined by purposeful action of groups of actors such as governments, companies and customers possibly resulting in incoherence, ambiguities and inefficiency of the governance of the nascent trajectory.

Taking France as a case in point, the paper attempts to unravel the interplay of a divergence of actors – public, private, associated; national, local; newcomers and incumbents – at three levels of geographical logic: First, the geography of knowledge creation, in particular in battery technologies; second, the geography of production of BEV; and, third, the geography of the use of BEV. France is the forerunner of electromobility in Europe, in several respects. The central government re-animated the promotion of electromobility fairly early compared to other European countries and was the first in Europe to launch an ambitious environmental policy on electric propulsion, in 2007. Hence, the paper considers a six years period of a nascent trajectory. Moreover, France can build on experiences from a long and fairly uninterrupted history of research, development and commercial tests of electric vehicles. France has become the largest European market for BEV, although BEV registrations account for less than 1% of the car market.

The paper claims that path creation of electric propulsion in France is largely path dependent and not as “disruptive” as it might be supposed, both at the supply side and the demand side. In fact, incumbent firms dominate the technological development in BEV and battery production. Cluster policies of central government (pole de compétitivité) foster the traditional geography of nodes in knowledge and production. This also applies to the electric vehicle. On the
demand side, strong inertia in customer’s behaviour in mobility prevails and therefore market creation for BEV needs major efforts from a variety of actors such as the central government, the car makers, and various local initiatives. The emergence of local initiatives in the use of BEV is supposed to create a selection environment for competing BEVs. Hence, there is a feedback loop from the local logic in the use of BEVs to the domestic logic of production of BEVs.

Two conclusions can be drawn from this analysis of coevolution in the nascent trajectory of the electric vehicle in France. First, the current stage of the trajectory hardly allows for a clear-cut governance of its dynamics but still is subject to heterogeneity and uncertainties at all levels. Second, the nascent trajectory to electromobility in France, although comparatively alive, for the moment cannot be seen as sustainable.

Joanna Williams:

Governing low carbon transitions in city-regions

One very important goal of the sustainability agenda is to reduce anthropogenic CO$_2$ emissions. There is a strong argument for focussing on the city as an appropriate scale at which to manage low carbon transitions. Local conditions can encourage radical socio-technical innovation (Quitzau et al 2012). Variation in local resources, political-economy and regulatory context have influenced the potential for the emergence of low carbon niches within cities (Bukeley and Castan-Broto, 2013; Williams, 2013, Hodson and Marvin, 2009 and 2010). The appropriateness, compatibility and public acceptance of these innovations are also dependent on local context and thus their success once adopted (Smith, 2007; Williams, 2013). To scale-up solutions need to demonstrate a positive sum-gain (Smith, 2007) which is also heavily dependent on the local context particularly local preferences and priorities; the institutional embeddedness of the new socio-technical systems; the local actors and learning networks (Smith, 2007; Williams, 2011). The transition process is heavily dependent on local context. Thus it is appropriate that the process is governed at a local level.

Cities are large enough to incorporate some systemic properties of existing regime structure and small enough to exploit advantages of proximity for the creation of new actor networks, discourses and institutions for alternate socio-technical configurations (Spath and Rohracher, 2012). Actor constellations and internal relationships between actors within a city will influence the emergence of innovation, the aggregation of niches and a city’s ability to transform (Coenen et al, 2012; Hodson and Marvin 2009; Spath and Rohracher, 2012). Locally-embedded actors are more likely to be influenced by the local sustainability agenda and less driven by profit (Williams, 2011, Hodson and Marvin, 2009). Thus, locally embedded actors are often instrumental in the creation of low carbon niches (Williams, 2011). It is important that city governments support these locally-embedded actors in order that they can compete with the more profit-focused national/international regime. Thus, it could be argued that the management of low carbon transitions is best achieved at a city-level.

Cities also have well established governance structures to coordinate change processes (Spath and Rohracher, 2012). The planning process provides one such instrument. It has been shown to be a powerful tool in encouraging the emergence and scaling-up of low carbon niches within cities (Williams, 2013 and Quitzau et al, 2012). Overall there appears to be
a strong argument for focussing on cities as an appropriate scale at which to manage low carbon transitions. Thus it is important to give city governments greater autonomy to develop their own regulatory frameworks (local design codes, planning process, etc) and provide them with the resources to leverage (funds, land, etc) and support local actors in the delivery of low carbon development. This more decentralised approach to managing low carbon transitions requires that at a national level the regulatory framework is flexible (performance-based rather than prescriptive approach) and national resources are used to support decentralised solutions (as with the feed-in tariff in Germany). In this way power can be devolved to cities to encourage place-specific low carbon solutions.

The problem with adopting a city-level approach to transition management is the degree to which urban systems are intrinsically linked with their hinterland. Cross-border processes (e.g. resource flows, commute journeys, knowledge transfer, etc) and networks (e.g. transport, energy supply, construction and food supply chains) need to be co-ordinated in order to deliver emission reductions. A cross-border consensus on CO₂ reduction targets and broad strategies for achieving them is critical to the delivery of low carbon transitions. The variation in priorities, politics and approaches to emission reduction between authorities has often created barriers to delivering transitions within cities. Ideally a long-term vision for the region which encourages a low carbon trajectory is needed to enable low carbon niches to aggregate. Learning and embedding processes also need to be co-ordinated across administrative boundaries if niches are to scale-up within a city-region. Thus the role of the region in setting strategic goals, co-ordinating processes and networks is critical for the delivery of the urban low carbon transition.

The findings outlined above are based on the “Zero Carbon Realities” project which investigated low carbon transitions in several European and American cities. In this paper we use two case studies to explore these ideas further: London/Thames Gateway and Freiburg/Baden-Württemberg.

Markus Szaguhn, Maike Sippel:
How to monitor Energy Transition in cities and regions. Concept development and pilot application for the Constance region

In cooperation with “Kompetenzzentrum Energiewende Region Konstanz” at the University of Applied Sciences Constance in Germany a controversial topic is being considered. The aim of this study is the concept development for an energy transition report that can be applied to the Constance region and furthermore, used as a toolbox for other cities willing to track their own development. Whether climate change, the German decision to exit from nuclear energy, a growing necessity to develop alternatives to finite fossil fuels or the potential to increase local added value – there are multiple reasons demanding an accelerated energy transition (german: ’Energiewende’).

But what's the status of energy transition e.g. in a specific region? Where does it work and how can potentials in regions be unleashed? Up to now there is only limited data available, so answering these questions appears difficult. The objective of the study is to fill in the gaps and help empowering players to better understand the transition process. The work deals
with the composition of an indicator system to monitor the energy transition process in cities and regions.

The first part of the study has a bottom-up approach. A number of energy reports on different political scales from the global to the local level are being analysed. From these reports, indicators with a potential to monitor the energy transition are extracted, collected and categorized in a database. This may include indicators such as greenhouse gas emissions, energy consumption, energy mix, modal split, public acceptance or energy costs.

The second part of the study reflects the energy transition process following a top-down approach. This implies a theoretical breakdown of the energy transition process into relevant fields of action and an analysis of possible implementation strategies. As we have a broad understanding of energy transition, this will probably include – besides renewable energies, grids and energy storage – also the demand side with buildings, transport, consumption and production as priority fields of action. A structure is created that shows the many aspects of the topic. It is then filled out with a manageable number of relevant energy transition indicators. Firstly, indicators are drawn from the database of the first step, if available. Secondly, gaps in the common practice of measuring energy transition, as analysed in the energy reports, are identified. This operationalization shall make the energy transition measurable. The selection of indicators is based on various criteria – comprehensibility, data availability and others.

In a third step the first energy transition report for the Constance region is created. Relevant data is collected from institutions and organisations to fill out the structure of indicators developed in the previous steps. For the follow up indicators should be developed for the gaps identified in common energy transition monitoring. Annual reporting seems important: The energy transition can only succeed when players in the region work together and combine their motivation, knowledge and abilities. The report could provide them with a common basis for future projects and help decision makers to govern one of the most important issues of our century.

**Paper Session 2, Strand B**

**Ariane Huguenin, Hugues Jeannerat, Olivier Crevoisier:**

**Governing transition through hybrid forums: the case of cleantech demonstration projects in Switzerland**

Although often criticized, the model of «cluster» (Porter 1998) still constitutes the fundamentals of the current European regional policies of innovation and territorial competitiveness. Primarily referring to the notion of competitiveness, these policies place competition among national and regional productive spaces as the main driver of territorial innovation (Martin et al. 2003). Broadly speaking, these policies can be presented twofold. From a knowledge perspective, public action is mainly characterized by the support to synergies between universities, firms and public authorities. From a territorial point of view, these policies are based on an “export-based model” which underpins the articulation between the local, where innova-
tions take place through the development and exploitation of resources (primarily technological) and the global, where the market selects goods and services.

These theoretical fundamentals of the cluster policy do not remain unquestioned. Recent literature has emphasized the new transnational and trans-regional forms of innovation and production organization, notably through the notion of “global production networks” (Coe and al. 2004). In addition, emerging approaches have started dealing with the dynamic dimension of clusters and their evolution in various life cycles (Menzel and al. 2010). Often adopting techno-scientific and production-centered lenses, most policies of competitiveness tend to overlook the importance of the coupling between production and consumption. Furthermore, insofar as end users are considered within literature, consumers have long been perceived as “passive recipient of products” disregarding the adoption process itself (Grabher and al. 2008).

Yet, recent discussion on European policy level is acknowledging the rise of new structural policies mirroring both complex and systemic dynamics of the socio-economic reality. Thus, both academic literature and public policy discourses tend to refer to terms such as “policy mix” or “business ecosystem” in a growing manner (Flanagan and al. 2011; CEC 2009). These expressions reflect the “messy and complex, multi-level multi-actor reality” of socio-economic dynamics (Flanagan and al. 2011) and stem from a wide range of factors, which summarize in three ways. First, they result from the unprecedented mobility of knowledge, people and financial assets. Second, the new challenges impinged by the recognition of recent climate disorders imply multi-sectoral logics and redefine institutional territorial borders. Third, “new ways of doing business” involve heterogeneous actors and often indirect monetary revenues.

Said to “bring down barriers in getting innovation products to the markets” (CEC 2009: 40), policies pay a growing attention to distribution activities and market-construction. It is for instance the case of pre-competitive support given to innovative “pilot projects” (Ibid.). Lending greater attention to consumer-oriented innovation, these instruments contrast with thirty years of production-based approaches to competitiveness. How these new forms of policy re-question the model of cluster? Which “social values” these policies build on and contribute, in turn, to consolidate?

The new central preoccupations linked to the shift from a fuel and nuclear based economy to a “green” economy implies reconsidering policies of innovation and competiveness (Geels 2005; Truffer and Coenen 2012). Using the case of “demonstration projects” developed in the “cleantech” industry in Switzerland, the present contribution will highlight the rise of a new type of public intervention examined as “territorial valuation policy”. In various aspects, such projects contribute to develop “hybrid forums” dedicated to reduce technical and social uncertainties (Callon and al. 2001). Primarily meant to raise debates within “enlarged” groups of actors (media, politics, experts, citizens), “pilot projects” contribute to the qualification and diffusion of “significant” knowledge. Aiming at sense making and, ultimately, at a shared meaning of sustainability and quality of life, they promote “greener” ways to produce and consume rather than end market goods or services directly sold.

Throughout this particular case, we develop the thesis that policies have entered an era in which culture and meaning are economically valued through their translation into the engagement of consumers/users/citizens in understanding, evaluating and criticizing. Due to the “uncertainty” (Ibid.) inherent to the social and technical adoption of “greener ways” to
produce and consume, public actors act as symbolic authority, to legitimate this new socio-economic value. In addition, through their support to pilot projects, they secure trust between distant (cognitively, socially, geographically) stakeholders and facilitate a collective recognition of new potentials for value creation. In this sense, public action ultimately contributes to co-create territorial identity building around technologies not confined to science and industry but open in public spaces. This identity is itself part of the creation of sustainable innovations, which redefine in turn the boundaries between economic and extra-economic activities.

Daniel Gabaldón-Estevan:
Distritual Innovation Systems as an analytical tool for assessment and intervention

There is a growing concern on the unsustainability of the actual production model of the so-called developed countries, even more facing the rapid growth of other economies, and especially of those of Brazil, Russia, India and China (the BRIC countries), the consequent increase on the demand of energy and raw materials to feed that growth, and the diminishing capacity of the environment to assimilate, in a non-traumatic way, all that impacts of that economic activity.

According to Eurostat about one in ten of EU-27 non-financial business enterprises in 2009, a total of 2 million firms, were in manufacturing. In 2009, the European manufacturing sector employed 31 million people and generated EUR 1,400 billion in value added. Some 30% to 40% of all employment is in industry - mostly concentrated on districts or clusters. In the European Union the accumulated scientific evidence on the unsustainable increase of the socio-environmental impacts of the economic activity is having an effect at European directives (e.g. European Strategy for Sustainable Development, Strategy for Adaptation to Climate Change) but further steps should be taken to lessen its impacts on the environment, particularly those derived from manufacture industries.

Within European manufacturing subsectors with lower productivity and exposed to an international market, like the industrial districts, are more vulnerable to the new EU scenario, characterised by an increasing pressure on environmental regulations (CO2-emission trading scheme, use of the Best Available Techniques, etc.), but playing in the same field that non-EU competitors (often producing their products with environmental standards below EU standards, lower energy prices and perhaps better access to raw materials). This context is provoking a debate over the sustainability of the so-called traditional industries in the EU due to the major transformations that are resulting from the process of globalisation and the current economic crisis. These transformations include the increasing demand for resources (especially energy and raw materials) from the world economies, and especially the BRIC countries; increased public awareness of the diminishing capacity of the environment to assimilate the impacts of human activity; and increased demand for environmental sustainability.

In the search for analytical tools to study these phenomena we found the Distritual Innovation System (DIS) approach, which combines the perspectives of innovations system and the industrial district, to be the most convenient one to study industrial districts’ sustainability transitions. The DIS concept emphasizes the relevance of the territory for the industrial district form, but also other elements of the innovation system (Gabaldón-Estevan et al., 2012).
The innovation system approach shows growing presence in the debate about the determinants of innovation, and has relevant implications on innovation policy. This approach identifies the agents and its connexions in different contexts such as territories (local, regional or national), sectors or technologies allowing an improved understanding on how innovation processes function. However, often that boundary may not be the appropriate unit of analysis for studying the most significant relationships regarding innovation in certain contexts such as industrial districts. The industrial district approach, on the other hand, offers the appropriate unit of analysis for studying the relevant relations at industrial districts, however, for the industrial district approach innovation has not been of central focus. We therefore use Distritual Innovation System (DIS) to evaluate its feasibility as an instrument for assessment and intervention and when appropriate we exemplify on previous work on a specific DIS of the ceramic tile in Castellon (Gabaldón-Estevan, 2011; Gabaldón-Estevan and Hekkert, 2013; Gabaldón-Estevan et al., 2014)

Therefore in this work we assume that: i) there exist limits to economic growth as it is understood in mainstream politics and mainstream economics; ii) an important part of the scientific community, together with other social actors, agree on demanding big changes on development strategies in order to reconfigure our societies according to sustainability; iii) to achieve sustainability, far-reaching changes along different dimensions (technological, material, organisational, institutional, political economic and socio-cultural) have to occur; iv) distritual innovation systems can be conceived as complex and interrelated systems where their social, economic, political, cultural, physical and environmental dimensions can be analysed as innovation systems the performance of which can be analysed and changes implemented.


Christian Binz and Bernhard Truffer:
Regions as mediators between niches and global networks – The transition to onsite water recycling in three Chinese city regions

Analyzing the spaces and places in which sustainability transitions evolve - and especially the central role of regions in this process - has moved to center stage in academic and policy circles (Bulkeley et al., 2011; Truffer and Coenen, 2012). It gets increasingly evident that regions are becoming a key locus and important actor of future sustainability transition dynamics (Coenen and Truffer 2012). At the same time, evidence is growing that transitions cannot be understood based on the specific actors and dynamics inside a region alone, but that they are increasingly evolving out of networks that span actors and processes at multiple interrelated spatial scales (Betsill and Bulkeley, 2006; Hodson and Marvin, 2010). Transition literature however only provides a limited understanding on why and how niches are able to
upscale in specific regions and fail to do so in others (Coenen and Truffer, 2012). This chapter aims at contributing to these questions by elaborating on the ability of regions in mediating local and global resource flows as a precondition for niche upscaling. By developing a respective analytical framework it aims at providing an important building block for a more general multi-scalar understanding of socio-technical transitions.

We will argue that an important element in explaining the success or failure of regional niches is their ability to mediate between localized innovation processes and the embedding of innovation resources stemming from a global innovation system level. Early transition processes can accordingly not be understood by looking only at innovation emerging from inside a regional context, but rather have to be conceptualized in reference to extra-regional and international innovation dynamics and the way they get anchored into a specific cities’ niche formation process.

This argument is elaborated based on a case study in urban water management. By comparing three Chinese city-regions and their attempt to build up onsite water recycling as an alternative to centralized water infrastructure, we develop a set of necessary conditions for effective niche upscaling. Qualitative content analysis of 60 expert interviews conducted in Beijing, Shanghai and Xi’an, shows that Beijing was most successful in developing on-site water recycling even though it provided the least favorable endogenous transition potential (related industrial competences, frontrunner entrepreneurs, technological capabilities). The crucial factor for Beijing’s success in developing onsite water recycling appears to be the way the city actively and recurrently anchored external innovation dynamic from a global innovation system level into its local niche. Direct global-local linkage led to the development of a successful niche that is now adding momentum to a broader transition in urban water management in a multi-scalar pattern both inside and outside China. Shanghai’s and Xi’an’s failure in the same attempt is equally explainable with their lack of global-local linkages in the innovation process.

We conclude by reflecting on the proposed analytical framework’s contribution for an improved understanding of regional transitions. Interestingly, in all presented cases, the national level’s influence on niche dynamics is less relevant than expected in existing literature. We thus outline new policy interventions and governance schemes that might help regions support and sustain similar multi-scalar early transition processes.


Hodson, M., Marvin, S., 2010. Can cities shape socio-technical transitions and how would we know if they were? Research Policy 39 (4), 477-485.

Transition Paper 2

Nadia Alaily-Mattar, Alain Thierstein:

Forging a role for spatial transformation in sustainability transitions

Understanding sustainability transitions as those “processes through which established socio-technical systems shift to more sustainable modes of production and consumption” (Markard, Raven, and Truffer 2012), puts spatial transformation at the very core of any effort to steer these transitions. After all, the social and the spatial are intricately intertwined. This resonates with the spatial turn discourse, which is not new of course. Yet particularly at the regional scale, forging a role for spatial transformation has been fraught with misgivings. This is due to vagueness of the definition of spatial transformation, how this process can be managed and what it can deliver, particularly at the regional scale. In addition, the tools with which spatial transformation is governed are also restraining.

In this paper we focus on planning tools that can steer sustainability transitions. We argue that formal spatial planning instruments, such as spatial structure plans (Raumordnungsprogramm), regional development plans (Regionalplan), and land use plans (Flächenutzungssplan) in Germany, are not geared to this task, as they serve different purposes. In deed, we argue that different tools are needed. The deficiencies of formal spatial planning tools have been acknowledged in almost every text book of planning. Statutory plans capture a static spatial state of affairs set in the near future. They cannot capture interconnected chains of impacts that need to strategically come together to drive transformation. Owing to these deficiencies, informal planning tools such as spatial development concepts (räumliche Entwicklungskonzepte), “Leitbilder” (guiding concepts), area based regeneration (Teilraumgutachten), etcetera... are increasingly en vogue. However, by being focused on the consensual, these tools fall short of unleashing the creative potentials of change and to account for negotiating the untried and discovering the unexpected. By having medium-term time horizons they remain restrictive. They fail to deliver a “temporal turn” for spatial planning.

So how can we capture these larger and long-term strategic spatial changes that are required to steer and accompany sustainability transitions? If spatial transformation is a key aspect for urban transformation and sustainability transitions, what tools can planners use to plan for an evolutionary process in which there are different rhythms and speeds of change? How do we represent on a plan the temporal aspect of change where hypothesized impacts of interventions lag behind spatial intervention proposals? How do we incorporate a multi-scalar perspective and the relational notion of space? How long is the long-term view, and how is this long-term view accounted for in a plan?

Being complex systems, with multiple inter-dependant variables whose developments are connected with positive and negative feedback loops, we must first abandon the idea that a scientific truth about the future of human settlements exists. Rather we endorse the fact that well informed judgments based on trends forecasts are a more suitable way of thinking about the future. This means that it is rather about indicating and raising awareness that many futures are, indeed, possible and perhaps also desirable. This is why futurists highlight the plural in “futures” (Cole 2001).
Set against this background, we propose in this paper an impact oriented, interconnected, systemic, futures thinking approach that calls for the consideration of the paramount role of space in planning for urban transformation and sustainability transition. The relational perspective of space is key in this regard as we focus on the urban scale that is embedded in supra-urban scales — the functional urban area, the polycentric mega-city region. We propose a planning methodology that develops (1) alternative futures for areas in transition based on SWOT and trends analyses that provide insights into possible future conditions and help identify the levers of change and (2) impact oriented intervention proposals set along a long-term time horizon.

Proposals of alternative futures are not provocative visions or autonomously running scenarios. They are possible futures if proactive measures are taken to get there. Developing proposals of alternative futures assists in enabling a view at the multi-scalarities and inter-temporalities of details while not losing sight of the bigger picture. Systematically assessing these proposals and comparing them to each other assist the decision-making process regarding which spatial interventions are selected today. We present a case study in which we applied this methodology as part of an interdisciplinary team commissioned by the Municipality of Nuremberg to develop proposals for the city quarter “Nürnberger Weststadt” (Technische Universität München 2013). We conclude by highlighting key findings.


Paper Session 3

Byron Miller and Samuel Mössner:
A Regional Sustainability Transition? Sustainability Policy Mobilities and Immobilities in the Freiburg Region

Freiburg im Breisgau, Germany, has garnered world-wide attention for its multi-faceted urban sustainability initiatives and achievements (Beatley 1999; Newman et al 2009; Beatley et al 2012; Hall 2013). The City of Freiburg has pursued initiatives in the realms of sustainable economy—including renewable energy science and business; sustainable mobility—including substantial expansion of light rail transit, cycling infrastructure, and pedestrian zones; protection of natural capital—including substantial forest, water, and soil protection programs; innovative land use planning—including the development of model sustainable neighbourhoods; and citizen participation—including adherence to the self-governance principles of Agenda 21 and the Aalborg Charter. Freiburg’s Vauban development now counts as a prominent and well-established model for sustainable urban development in the planning literature and many studies refer to it as an example to be emulated beyond the local context.
(e.g., Scheurer and Newman 2009). Indeed, Freiburg’s sustainability programs have become so well regarded that the City of Freiburg has decided to capitalize on their visibility and market itself as “Freiburg Green City” (City of Freiburg 2009). The “Freiburg Green City” model was presented at the Shanghai World Exposition in 2010 and in the same year the City developed the Freiburg Charter of Sustainable Urbanism (Daseking, Köhler and Kemnitz, 2010), an institutionalization and generalization of Freiburg’s sustainable development policies aimed at facilitating policy transfer around the world. Consequently the Freiburg model has been publicized and discussed in municipal sustainability networks stretching from Europe and North America to China and Australia.

Given the City of Freiburg’s active role in sustainable urban development policy transfer (McCann and Ward 2011; McCann and Ward 2012; Cochrane and Ward 2012), one might expect its policies to have their greatest resonance and uptake in the immediately surrounding region. Yet regional adoption of the Freiburg Green City sustainability policy model has been uneven at best. Almost as many workers live outside Freiburg and commute to work as live in the city and work (Landesamt für Statistik Baden-Württemberg, 2013). Many of the city’s suburbs and suburbanized villages are not efficiently connected to light rail or regional train systems. And rising housing costs have become a significant push factor for many households who, economically, have little choice but to live outside the city and commute.

Surprisingly, neither housing affordability nor suburbanization nor its associated commuting issues are addressed in Freiburg’s 2009 Green City document. Perhaps understandably, Freiburg’s sustainability initiatives have, to date, focused within the boundaries of the city. Yet cities are never isolated, stand-alone, entities; rather, they function as urban and regional systems. Accordingly, a robust understanding of ‘eco-cities’ must include their regional relationships and context.

This paper addresses the uneven geography of inter-municipal policy transfer and integration within the greater Freiburg region. Drawing on policy documents, statistical data, and interviews with local officials across the region, we raise pragmatic as well as theoretical questions about the process of sustainability policy transfer and integration within a regional context of competing villages and towns, traditional and ossified local governance regimes, and the absence of effective forms of regional cooperation. Recent work examining the multiple spatialities of social, political, and governance processes (Jessop, Brenner and Jones 2008; Miller 2013; Bridge et al 2013) informs our understanding of the mobility and immobility of sustainability policies and practices. Drawing from these ontological and theoretical frameworks, we examine policy transfer in the Freiburg region and offer an assessment of its uneven geography, addressing the mobility of policies and the reasons policy mobility may be blocked.

Anne DuPasquier:

Densification and Quality of Life: Sustainable Neighbourhoods as a Solution

In Switzerland, spatial management is a major challenge, part of the federal strategy for sustainable development. Land is under intense pressure: the area used for housing and infrastructure is increasing at a rate of approximately 1m²/s. This is eating up agricultural land
and concreting over the landscape. The built area per inhabitant is also constantly growing, as a result of ever-increasing needs. The aim is to stabilize at around 400 m²/inhabitant.

There are several current policies for managing the territory sustainably, for instance the legislation on spatial development has recently been reviewed with a view to restricting areas that can be built on. The objective of planning according to the principles of sustainable development is to emphasize not only the economic but also the environmental and social aspects.

From this perspective, the neighbourhood – midway between town or village and individual building – would seem to be the right scale to focus on in implementing sustainability, densifying development and so limiting the consumption of natural resources. Here, in a limited area, all the needs of a commune and its inhabitants are concentrated: sustainable land management, mobility, functional and social diversity, energy efficiency, reduced consumption of resources, encouraging biodiversity, all in the interests of a good quality of life. In order to achieve this goals, there is a need of a new governance. Participation is an integral part of the process, as more and more people are speaking out against thoughtless densification if there are no compensating factors. A sustainable development approach would provide a good solution, because it would be wrong to solve one problem (spatial development) by creating others (social).

Therefore Switzerland has launched a "Sustainable Neighbourhoods Programme" to support municipalities in achieving these goals in new construction projects and in converting the existing housing stock. An instrument has been developed to check the projects compatibility with sustainability: sustainable assessment is a procedure which assesses the effects of a project over time and space, on the basis of sustainable development principles. In other words, it outlines its impact in the short and long term on the economy, society and environment of a given local territory. Using a computer application, the project is analysed and the results are summarised. The outcome highlights the project’s strengths and weaknesses from the standpoint of sustainable development. The target is possible to make improvements. An initiative of the kind proposed by the Swiss federal government has the advantage of bringing all the actors together round a table, raising the right questions (checklist) and so avoiding possible conflicts of interest – and all at an early stage.

**Giustino Emilio Piccolo:**

**Moving the low-carbon energy transition. Which role for urban planning?**

Background: Cities and low-carbon energy transition: problems vs solutions

Realizing a low-carbon energy transition is one of the most challenging and urgent point on the agenda of many States around the globe. Achieving the goal of a carbon neutral and sustainable energy system requires fundamental changes in the socio-technical regimes, in terms of infrastructures, regulations, institutions and actors behaviours. These processes of change are strongly influenced by the spatial contexts where regimes’ elements are embedded. Considering that, they can only be managed and understood taking into account their spatial implications (Coenen, Benneworth, & Truffer, 2012), especially at the cities’ scale, that has been considered the crucial one (Hodson & Marvin, 2012).
Cities are the places where people move and consume, where buildings lie and most of activities take place. Since 2008, with more than half of world population living in cities, they are becoming massive energy eater systems and the primary source of GHG emissions. So, cities are addressed as the places where unsustainability issues appear and where most urgent energy problems arise.

At the same time, nowadays cities have also a key role in finding sustainability solutions; they can actually be the place where “transition to sustainability can be accelerated” (Nevens, Frantzeskaki, Gorissen, & Loorbach, 2013). Cities are connected within wider energy systems and are embedded in multi-level governance structures, both at national and international levels, and are often involved in global networks. They also manifest great potentialities to transfer local solutions to global scales.

The European Union, also considering that in Europe more than two thirds of people are settled in urban areas, recognized the central role of cities in the low-carbon energy transition, and underlined the importance of cities’ development as the key elements to work on to achieve its energy targets (EC 20/20/20 strategy).

Research focus: urban planning to face the low-carbon energy transition

The attention on cities and spatial energy related problems is increasing. But whether the sustainability energy transition dynamics (Verbong&Loorbach, 2012), and the cities’ roles in this process have been openly discussed (Geels, 2011), more have been studied regarding sectorial approaches like in buildings and transport sectors then to the city as a whole. Urban planning can provide this wide view by moving from the sectorial to an urban approach (Zanon&Verones, 2013).

In Europe attention to low-carbon energy system and its implications have already been experienced at city-scale. A constellation of cities, playing as pioneers of the low-carbon transition, have indeed already committed themselves to a more sustainable use of energy. Carbon neutral visions, targets and goals have been implemented through city-scale strategies and urban plans. Besides these pioneers an increasing number of cities is coming out now and boarding the low-carbon transition not without finding barriers and difficulties.

Research objectives and methodology: analysing urban planning in the low–carbon energy transition by using a multi case-study design. Based on the theoretical insights described above, the research has the overall aim to understand the role of urban planning in the low-carbon energy transition.

The research is applying a multi case-study design (Yin, 2009). Three case-study in Europe are analysed. The three cities in Sweden, Germany and in the Netherlands have been chosen among those which have already committed themselves to carbon neutral vision and have implemented this in urban planning documents. A cross-case conclusion is carried out. Key elements out of the analysis are then collected and guidelines for low-carbon urban planning to stimulate further researches are obtained.


The fall-out from the late 2000s global financial crisis has led some commentators to question whether our economic system has reached its capacity for growth, especially in environmental terms. “Limits to growth” theories are not new, but they have gained new momentum from the Economic Crisis and concomitant “crises” that surround it, such as concerns over climate change and global food insecurity. Thinkers from various professional quarters have developed or resurrected alternatives to orthodox growth paradigms (e.g. the French décroissance approach) and proposed transitions for sustainable cities and regions (Geels, 2010). Indeed, the so-called “décroissance” or “post growth” paradigm and transitions management approach have gained some traction in scholarly and policy circles (Jacobs 2012; Bertelsmann Stiftung, 2010; Jackson, 2009; Smith, 2003).

For two decades, scholars, largely from a regulationist perspective, have examined the institutional shifts that accompany local and regional economic regime changes. Regulationism focuses on hegemonic meta-narratives (e.g., Neoliberalism) and their dynamic underlying institutions. Regulationists, however, overlook the “intermediary” contexts; the politics of dominant priorities and the spatial implications of transitions (Hodson and Marvin 2012).

Recent ideas advanced through the “interpretive institutionalist” approach may help reveal new insights into the problematic nature these transitions (c.f. Bevir and Rhodes 2012; Gibbs and Krueger 2011). An interpretive account of institutions and capitalist transformation extends regulationism by exploring how social relations in cities and regions are created, sustained, and modified, through the ideas and actions of individuals. It thus conceptualizes institutional change/transition through a framework of ‘meaning making’ by agents who create and recreate their milieu as part of broader political-economic contexts.
Through the lens of “interpretive institutionalism” this paper seeks to systematically identify and examine those cities and regions where post-growth and sustainability transitions are developing. Our work complements existing political economic explanations by looking beyond institutional form and incorporating agents’ understanding of their “green economic opportunities” in their political and economic milieux. This work may thus produce a better understanding of the factors that influence sustainability transitions in local and regional economies.


Paper Session 4

Sören Becker, Ross Beveridge:

Ideas, Strategies and Structures: Understanding transition governance from a relational institutionalist perspective

In recent years the sustainability transitions approach has developed into one of the most important tools in researching change in socio-technical systems (cf. Markard et al. 2012). There are three recurrent strands of critique regarding this relatively new approach, which we address in our paper. These are the downplaying of agency and power (Avelino 2011, Smith et al. 2005); the question of ideas, visions and strategies (Bulkeley et al. 2011, Kern 2011) and the absence of detailed consideration of spatial factors, beyond the metaphorical (Coe-nen et al. 2012, Lawhon & Murphy 2012).

To address these points, this paper proposes a relational perspective on the role of ideas, actors and institutional change that originates from a critical understanding of discursive institutionalism (Hay 2006, Schmidt 2010) and the strategic relational approach (Jessop 2001, 2010). Our main theoretical argument is that while institutions have been attributed some significance in enabling and constraining agency in transitions (Geels 2004, Geels & Schot
2007, cf. Giddens 1984), the processes and implications of institutional change that result from actors’ world views and strategies to formulate and realise them deserve more academic attention. The main contribution of this paper is to outline two research themes – power struggles and structures of power; and storylines of change and stasis – that could lead future work on changing regional governance and institutional settings in energy transitions and beyond. We will illustrate how these approaches can be applied in a spatially sensitive way by analysing ownership shifts in energy utilities in the city of Hamburg.

The strategic relational approach (SRA) (Jessop 1990, 2001, 2010) was developed most notably by Bob Jessop as a critique of Giddens’ theory of structuration. In general terms, SRA reframes the structure-agency duality by a dialectic understanding that captures power in a more explicit way. This implies that structures (i.e. of governance) are not neutral, instead their “modus operandi is more open to some types of political strategy than others” (Jessop 2010: 36). As a result, the ability of actors to reshape existing structures is derived from the relation of situated agency and selective structure, not from stand-alone structure or agency. Space here is included in the way that each organisational structure “involves the diverse modalities in and through which spatial and temporal horizons of action […] are produced” (ibid.: 46). Rescaling, then, is the outcome of the structurally oriented agency of different actors (Jessop et al. 2008). In effect, power is the aptitude of actors to alter these structures in their favour. It is inscribed in existing institutions as they are an outcome of power struggles (Jessop 1990).

The term DI covers a relatively broad area of political science research ‘which takes ideas and discourse seriously’ (Schmidt 2010), albeit with often differing emphasis on the two and their analytical function (Schmidt 2011, 683). The key strength of this so-called “Fourth Institutionalism” (following Rational Choice, Historical Institutionalism and Sociological Institutionalism) is that it is directly concerned with how social reality, institutional structures and, for example, pathways of change, are constructed through the interactions of actors, talking, arguing, making sense of the world around them. Hence apparently neutral givens become seen as socio-political constructions, contestable, inherently unstable, analysed through the development of ideas about ‘what is and what ought to be’ (Schmidt 2010, 3), and the discursive shaping of reality by actors through language - storylines, specific vocabularies, generative metaphors (Hajer 2003, 103-7). In this perspective, institutional context can be read as “meaning context” (Schmidt 2011, 684), though formal institutions and their framing effects are still considered. These contexts also relate to spatial constructions and spatialised future visions (Hodson & Marvin 2012; Peck & Theodore 2013).

By drawing on the strategic relational approach and discursive institutionalism, we will develop two research themes that might guide an institutionally sensitive transition research. The SRA debate inspires us to look at power struggles and structures of power. That means to consider the structural selectivity of institutional arrangements; which actors shape transitions and which actors are excluded. This would entail a deeper analysis of decision-making processes and how formal and informal institutions allow access to some and foreclose other actors. Additionally, we would focus on the mobilisation of different resources by different types of actors in attempts to change the institutional arrangement, and the perception of those actors about their positioning in the relational field of power.

Drawing on the DI school we will follow the storylines of change and stasis. We will perform, an analysis of language and texts (e.g. primary texts, speech acts) we examine the construction of meaning among actors, exploring the role of ideas and the development of interests
and norms. Fourth, we probe the definition of transition targets in relation to the performance of wider discourse in specific contexts of action, observing the discursive strategies (e.g. storylines) employed by actors to prompt institutional change.


Bulkeley, Harriet; Castán Broto, Vanesa; Hodson, Mike; Marvin, Simon (Hg.) (2011): Cities and low carbon transitions. London: Routledge.


Léa Sébastien:

A complex scale imbrication of alternative indicators

What objectives should be chosen for society? How to measure sustainability, social progress, quality of life or wellbeing? Should GDP be replaced? Or should it be enhanced by social and environmental indicators? Over the past few years, these questions have grown inside political agendas at every geographical scale - local, regional, national, European and international. As a result, a multitude of initiatives can be observed and analysed.

As this “Beyond GDP” movement gains in importance, the scientific community provides a great variety of approaches to understand the building processes of indicators or the role they can play in governance systems. However, a few studies tackle the way how societal, political and scientific actors handle this “Beyond GDP” program and how it interacts with their habits and social representations. We tackled this question – as part of the European FP7 project BRAINPOoL – through a deepened analysis of scale and participative aspects of alternative indicators issues. How do scientific, political and societal actors involve in alternative indicators initiatives at various scales? Here is the question we try to bring answers to in this communication.

As a first step, we will describe the theoretical and analytical frame that underlines our questioning (evolution of governance processes, institutionalization factors, social convention theory). We will then present our two stages methodology (institutional contexts and analysis of speeches). Our results are presented in a third section. They underline the diversity of habits and of social representations linked to alternative indicators. We propose to clarify this diversity and deepen two major stakes fostering the divergence of opinions between actors: 1) the complex imbrication of scales when indicators are discussed and implemented; 2) the gap existing between motivations and actions while alternative indicators are produced and citizens involved.

This communication is based upon an analysis of local initiatives lead in the French Région Midi-Pyrénées. We analysed here the pool of actors involved and the levers and barriers identified as factors affecting alternative indicators political up-take at infra-national scales.

Gerd Lintz

Local Opposition to the Accelerated Use of Wind Energy – Reflections on a Major Factor in the Energy Transition

In many countries the generation of wind power, which is the most promising source of renewable energy, has already emerged from the technological niche in which it developed. However, it is in danger of stalling in its course from niche to mainstream. The transition to the sustainable production of energy faces growing local opposition, in particular to the large-
scale deployment of wind turbines. Yet, as Raven (2012) has noted, transition research has tended to focus on resistance from regime actors who fear competition to their business concept, for example companies producing electricity from fossil fuels. Accordingly, he calls for research on the general socio-political acceptance of renewables. Loorbach and Verbong (2012) also see acceptance as a crucial challenge for the energy transition and plead for a better understanding of the role of civil society organisations and citizens who play an important role in local opposition.

Independently of transition research, for example in landscape studies and energy policy research, there is also a large body of literature on the impacts of renewable energies (e.g. Lima, Ferreira and Vieira 2013), on location planning (e.g. McWilliam, van Kooten and Crawford 2012), and on the acceptance of renewables (e.g. Hall, Ashworth and Devine-Wright 2013), especially with regard to wind power. Wind turbines are growing in size (overall height up to 220m) and can themselves cause serious environmental effects, e.g. on the landscape scenery, on birds and people. Indeed, as the use of wind energy grows, finding new sites is likely to become more difficult and the potential for conflict greater. This paper accordingly brings together the two perspectives, conceptually integrating them to give an overview of research on the acceptance of wind energy and to suggest where research should go from here.


Paper Session 5, Strand A

Aurore Fransolet:

Toward a low-carbon Wallonia in 2050. Limits and challenges of current governance

In the context of low-carbon transition, the Walloon Region — like the European Union (EU), Belgium and other member States / EU regions — has decided to reduce its greenhouse gas emissions (GHG) by 80 to 95% in 2050 (above 1990 levels). A technical-economic study conducted by Climact on behalf of the Walloon Agency for Air and Climate shows, with a range of low-carbon scenarios, that this objective is technically realistic and that there are several ways to achieve it. Nevertheless, although it is technically realistic, the low-carbon transition will not happen without a reform of governance. Indeed, several scholars (Boulangger, 2008; Foxon et al., 2009; Montini, 2011; Söderholm et al., 2011), but also politico-administrative authorities (Service fédéral Changements climatiques, s.d.) believe that the
transition toward a low-carbon society — and more broadly, the transition toward a sustainable society — is an unprecedented political challenge that, in order to be solved, will require a new conception of governance. A number of issues render the low-carbon transition very complex and justify the need to rethink its governance (Bäckstrand, 2003; Urpelainen, 2013; Voß et al., 2006):

(1) Path dependence and lock-in: The range of possible future developments is influenced and constrained by the long term effects of past decisions.
(2) Long term: The low-carbon transition goes well beyond the regular time horizon of public action.
(3) Heterogeneous interactions: In order to understand the dynamics of the transition toward a low-carbon society, it is necessary to apprehend the complex interactions between climate, technologies and society.
(4) Uncertainty: The long time horizon and the complexity of interactions between climate, technologies and society lead to a lot of uncertainty.
(5) Multilevel: Given that the climate change is not limited to national borders and that the configuration of a low-carbon society goes beyond the levers of public action available for the Walloon Government, mitigation policy will have to be implemented at different levels of power.
(6) Multisector: By involving a reviewing of consumption and production patterns in all sectors, the low-carbon transition requires the coordination of efforts to reduce GHG in different functional domains.
(7) Multiactor: Within the different levels of power / functional domains, many actors, whose values and interests differ, are concerned by the low-carbon transition.

This is in this context that we have decided to study the limits and the challenges of current low-carbon transition governance in Wallonia. In this study, we consider “governance” in the broad sense, namely, as the way society is steered by public and / or private actors (Hufty, 2007; Treib et al., 2007). Furthermore, even if the focus is on the Walloon Region, it seems necessary to apprehend the governance in a global context. That is why we took into consideration four levels of power: local, Walloon, Belgian Federal and European.

During this Workshop, we intend to present the way low-carbon transition is currently governed in the Walloon Region. In this sense, the governance is studied through an analytical framework that allows to grasp policy, politics and polity dimensions of governance (Treib et al., 2007):

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<tr>
<th>DIMENSIONS</th>
<th>CHARACTERISTICS</th>
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<tr>
<td>Policy: Types of policy instruments</td>
<td>Legal binding or soft law? Degree of flexibility of policy instruments Degree of malleability of norms Material or procedural regulation Presence or absence of sanction</td>
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<tr>
<td>Politics: “Constellation” of actors and power relation between them</td>
<td>Relative power of politico-administrative authorities Relative power of civil society (environmental and development NGOs, employers’ federations, workers’ unions and consumers’ organizations) Relative power of scientists Relative power of citizens</td>
</tr>
<tr>
<td>Polity: Set of rules that determine the actions of actors</td>
<td>Institutional structure of the interactions between the actors (hierarchies, networks, markets, communities…) Locus of authority (central, dispersed…) Degree of formal institutionalization of decision making and implementation processes</td>
</tr>
<tr>
<td>Metagovernance: “Governing of governing”</td>
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</table>

On the basis of this analysis, we will conclude the presentation by discussing the limits of current governance in relation to the challenges posed by the low-carbon transition (path
dependence/lock-in, long term, heterogeneous interactions, uncertainty, multilevel, multisector and multiactor).

**Paul Szabo-Müller:**

**Managing Sustainability Transition in the Air Quality Sector – Insights from the Cross-Border Region Euregio Meuse-Rhine**

Sustainability transitions (ST), and especially their governance or management, have gained a prominent role in scientific debates in recent years. While sustainability transition research in general focuses on the analysis of socio-technical systems, like energy and water supply or transportation (Markard et al. 2012, p. 956), the transition management (TM) approach deals with how to control and govern long-term evolutionary processes of fundamental change towards more sustainable systems (Voß et al. 2009, p.283).

One desirable outcome of such a process may be air quality improvement. Currently, air pollution, and especially peoples’ exposition to Particulate Matter (PM), forms one of the most serious global environmental problems with high impacts on human health (WHO 2014). Not surprisingly, various efforts on the international (WHO, UN, OECD, EU) down to the regional/local scale try to mitigate air pollution. Especially regional/local air quality and action plans seem to offer a useful tool for sustainability management and therefore deserve consideration in ST research. They do not only include measures for the mitigation of air pollution, but also target directed processes of participation, cooperation, collective learning and other typical elements of TM. This already indicates that TM is a very challenging process. An additional challenge of air quality management, especially in border regions, is that air pollution doesn't stop at administrative boundaries, while tasks and responsibilities of responsible authorities do.

![Figure: PM10 sources in the Euregio Meuse-Rhine and Europe in 2008](sources.png)

Sources: E-PRTR (Dissemination Report, Methodology Report., Database v4.1), own calculations

This paper bridges between conceptual debates on sustainability transition management and empirical experiences on practices of air quality regulation and governance gained in the
course of the cross-border collaboration project PM-Lab (PM-Lab 2014). Instead of looking at a particular socio-technical system, analysis relates to a surprising blind spot of ST research: the systemic management of a specific environmental challenge like Particulate Matter (PM). This perspective allows to address different sources and process fields of air pollution (see figure below), associated with different socio-technical systems. In addition, the spatial cross-border context of the investigated case stresses another important aspect which has widely been overlooked in sustainability transition research. Various challenges as well as practices of air quality management in the regions composing the Euregio Meuse-Rhine can be illustrated.

Empirical insights from the PM-Lab project indicate that, regardless of the common European legislation framework, air quality is fairly differently managed in the different parts of the EMR, notably regions in Belgium, Germany and the Netherlands. The limits and challenges faced in current air quality governance/management seem to be highly context specific. This especially applies to general strategies, organizational structures, division of tasks and responsibilities, level of cooperation and, last but not least, the commitment to action. Also the types of relevant PM10 sources differ between the involved territories (e.g. steel production in the Walloon Region vs. coal fired power plants in the Regio Aachen) and determine ways of action. Conversely, all parts of the EMR have seen successfully reduced industrial PM10 emissions in the last years.

The plurality of emission sources also indicates that air quality planning must involve various stakeholders. Typical actors in the field of air quality are (among others) a broad range of public authorities on different administrative levels and in different fields of action like infrastructure, spatial planning, transport, environmental monitoring and public health as well as research institutions, private companies (mainly industry) and citizens, who are the target of protection against air pollution. But cross-border cooperation in the EMR seems to take place only in a few cases and occurs selectively (i.e. not continuously), mostly within national or company boundaries. In some cases, authorities, companies and other actors work together in (project oriented) ‘eco-networks’, for example during the implementation of air quality plans. But in most cases, authorities and companies collaborate on a ‘legislation base’, e.g. environmental permits or control. Also ‘market based’ relations, like the use of environmental services or research facilities (measurements, studies), are very common.

Referring to, and inspired by, the guiding questions of the RSA conference, the following (preliminary) questions shall be discussed in the paper:

- (How) Can the consideration of specific pollutants like PM10 help to specify the term “sustainability” in sustainability governance/management research and practice?
- Is the sustainability transition and especially transition management approach suitable for the analysis of specific environmental problems like PM10? What could such an analysis contribute to these concepts?
- How can the spatial contexts of environmental problems and sustainability transitions in different regions be compared, using the PM10 example?
- In which respects does the focus on different polluting sectors (socio-technical systems) offer chances to investigate further (common) sustainability opportunities and threats?

Energy Transitions towards decentralized governance of energy systems with increasing distributed and fluctuating power generation impose new challenges for different actors, or actor groups, respectively (e.g. disruption in the power industry in the mid-term due to inadequate conventional business practice). An example of such an energy transition may be the Swiss energy strategy 2050 that envisions the buildup of new renewable energy capacity up to 40% in order to cope with the phase out of nuclear energy and long term power supply contracts.

The involved challenges of such a transition (e.g. vulnerability of energy supply, financial deficit, loss of competitive advantages) change dynamically over time, as well as the management tasks (from the construction of new „fluid“ socio-technical configurations in niches towards the stabilisation of new regime structures). Actors and entrepreneurs may – or may not – invest in socio-technical learning processes in order to cope proactively with the pressure to change and to deploy new benefits and business opportunities. There exists a wealth of theories on such dynamics of socio-technical transition. However, we do not know of any research that aims at empirically assessing the buildup of adaptive capacities in different regions and in different actor groups. In our research we address this gap and develop a framework for monitoring the sectoral adaptability over time. We depart from the process model of absorptive capacity and elaborate on the relevant components in socio-technical transition: the buildup of capacity potential and its realisation. We postulate that an improved adaptive capacity results in enhanced comparative advantage and security of supply. One can understand adaptive capacity in a more objective (e.g., money, time, know-how) or a more subjective way (perceived adaptive capacity). We argue that it is crucial how actor groups perceive their own adaptive capacity: How actor groups expect themselves to cope with future challenges could take the function of self-fulfilling prophecies by converting these expectations into action.

We suggest operationalizing, measuring and comparing the perceived adaptive capacity of key actor groups (e.g. utilities, local and regional authorities, research and industry partners, mediators) in different energy regions.

We discuss the strength and limitations of both the process model of adaptive capacity and the role of perceived adaptive capacity as a construct for measuring and assessing a dynamic adaptation process. The promise of this research is to discern most promising energy regions and lagging energy regions. A second promise is to differentiate specific adaptation mechanism of actor groups and regions. Finally, this research could path the way for panel
studies and the collection of time series data on regional adaptation processes. Such a monitoring approach provides empirical evidence on regional policy programmes, entrepreneurial strategies and citizens movement that are more or less likely to contribute to successful transition paths and national energy strategy goals.

**Paper Session 5, Strand B**

**Kirsi Mäkinen, Paula Kivimaa and Ville Helminen:**

**Transition towards sustainable urban mobility – barriers and opportunities from urban form**

In recent years, interest in transport systems and mobility has increased in the sustainability transitions research field and various studies have been published under the umbrella of ‘sustainable transport transitions’. Much of the discussion on change in transport systems relates to the decarbonisation of transport (e.g. Banister et al., 2012). Specifically, research has focused on technological development with respect to automobility and the development of alternative fuels. From the governance perspective, transport transitions require changing policies at multiple levels from local to the international. The governance of transport transitions is likely to require both coordinated policy mixes facilitating systemic change (e.g. Kivimaa & Virkamäki, 2014) as well as innovative policy instruments (e.g. Upham et al., in press). One of the shortcomings identified in the present body of transitions literature is the treatment of spatial aspects of transitions (e.g. Smith et al., 2010; Coenen et al., 2012; Naess & Vogel, 2012) and while governance has been identified as a relevant issue in transport transitions, policy analyses have seldom been connected to urban studies. The spatial dimension is crucial for transport transitions as transport is essentially spatial in nature. Our aim is to examine how current, particularly recently introduced transport policies influence path dependence and path creation in the urban context, paying attention to three identified urban systems. The paper provides novel insights into the literature on low carbon transport transitions by combining policy analysis to the spatial model that recognises three overlapping urban systems: walking city, transit city and automobile city.

The physical expansion of urban regions, through the co-development of transport systems and land use planning, has generated layers of infrastructures and patterns of land use that display elements of multiple transport system eras (Newman & Kenworthy, 1999). The history of transport system development is shaped by technological innovations and an increasingly growing demand for transport in societies. First, the invention of rail transport increased mobility and transformed early walking cities to transit cities with sub-urban centres. The development of modern, car-based automobile cities with high mobility levels has enabled immense growth in trade and increased the range of choices available for individuals regarding where they live and work. Along with such benefits, growth in transport has had many less desirable effects of which present day cities are living examples with traffic jams, poor air quality, urban sprawl and increasing costs for individuals, businesses and the environment alike.
Climate change mitigation is a key challenge for today's transport systems and calls for 'sustainable transport', 'low carbon mobility' and 'zero emissions technologies' are growing constantly louder. Recent experience from Finland shows that urban form influences mobility profoundly as mobility patterns vary within different urban systems (Ristimäki & Kalenoja, 2011). Each system provides its own accessibility-related opportunities and limitations for mobility which should be recognised and considered in analyses of spatially bound transport transitions.

Recently, several publications have dealt with the Finnish transport system transition and its governance requirements. Studies have primarily focused on the national level (Temmes et al., 2013; Kivimaa & Virkamäki, 2014), while significance of the regional level or urban form in transport transitions have not been explored empirically. Thus, this paper aims to examine if and how the heterogeneous nature of urban systems influences the potential effects of transport policies on low-carbon transport transition in an urban region. First, we will create an analytical framework on the basis of path dependence and path creation literatures and link that to the three urban systems. Subsequently, we will examine path dependence with respect to the automobile city and path creation and path revival regarding walking and transit cities by analysing selected national and local policies in Finland and the Helsinki metropolitan region. Particular attention is paid to recently introduced policies and whether they represent attempts towards transport transitions by destabilising path dependence and strengthening path creation. From a transition governance perspective, we would expect policies to both destabilise the automobile city and enforce path creation and path revival in walking and transit cities.


Constance Carr, Evan McDonough:
Integration and paradoxes: The governance of sustainable development in the Glatt Valley

This paper builds upon the conceptual understandings of sustainable development as fundamentally paradoxical (Krueger & Gibbs 2007), of contradictory social space (Schmid 2005), and of integrative planning as central to the tenants of sustainability, yet, as Enright (2012) has observed, inherently problematic. This paper examines how integrative spatial planning strategies sanction further fragmentation, occluding sustainability objectives from the get go. Our empirical base is drawn from observations of transport integration initiatives in the region of the Glatt Valley, a rather undefined area extending from the City of Zurich towards the airport and spreading over up to fifteen micro- and small-sized municipalities. The entire area is under growth pressure, forcing municipalities - that are sparsely staffed, characterized by very close-knit relations, function on systems of ‘militia government’ - to co-ordinate beyond traditional and administrative borders. One of the major, and most celebrated, products of these efforts is the Glatt Tram that was constructed to strengthen this ‘airport region’, winding through productive areas (usually revitalized brownfield sites), connecting the City of Zurich to the airport. To understand integrated infrastructure development in the region, the discourse was reconstructed by surveying relevant documents, and conducting conversational interviews with actors in the area. Observed was a process of infrastructure consolidation towards optimizing capital accumulation; however, this integrated approach was also maintaining or leading to further fragmentation. This is seen in at least four ways: 1) transport was designed to follow functional pathways; 2) infrastructure provision was planned to attract, assist, and care for business development and expansion; 3) the planning strategies were driven by notions of density that maintain existing polarizations such as the maintenance of city versus rural dichotomies; and 4) the measures targeted functional and sustainability problems without addressing existing axes of political marginalization and possible privilege. There are two conceptual conclusions that can be reached. First, the research confirms that sustainable development remains, at best, a paradox (à la Krueger & Gibbs 2007), and it is difficult, if not impossible, to ‘sublate the contradiction’ of social reality (Schmid 2005), and in this case, with respect to sustainability. Second, our research confirms Enright’s (2012) work, who observed that the concept of integration, a concept seen as central to sustainability, generates new rounds of fragmentation and contradiction.

The paper will present an approach to quantify spatial effects which have to be expected after policy measures such as modification of zoning constraints or road pricing. Further, we discuss how this approach can be used in strategy debates during a planning process to pursue sustainable development. To do so we will show how the quantification approach can be embedded in an urban management cycle (Renner, 2012) including phases of analysis, participation and controlling.

The quantification approach is an agent-based land use transport interaction model implemented using three software packages, namely UrbanSim, MATSim and Modgen. This simulation of urban system development has been developed as a case study in the SustainCity project funded by the European Union. The Canton of Zurich has been chosen as study region for which 30 years of development have been simulated. This comprises approximately 1.2 Million inhabitants and 700.000 jobs (Schirmer et al., forthcoming, 2011). The paper is thus able to demonstrate how highly detailed regional simulations can help us to better understand and govern the evolution of urban systems in a region of interest.

UrbanSim (Waddell, 2002; Waddell and Ulfarsson, 2004) is an open-source software with a large user community. It is designed to estimate and simulate land use development spatially by applying discrete choice theory (McFadden, 1981, 1978; Ben-Akiva and Lerman, 1985) and other statistical methods such as hedonic regression (Rosen, 1974) in the context of urban land markets. The core models are choice models of real estate developers (Zöllig Renner and Axhausen, forthcoming), households and firms (Bodenmann, 2011). The software is flexible in respect of the geographic unit of analysis by allowing to use zones, grid cells or parcels. The latter is preferred because it is the smallest unit to which regulations apply and thus has been used in the case study. The populations of choosing agents are updated during the simulation by demographic and firmographic models. An important attribute of choice alternatives is their accessibility (Geurs and van Wee, 2004) which is the nexus to the transport simulation.

MATSim (Balmer et al., 2008) is use as transport simulation with the advantage that agents can be exchanged guaranteeing consistency in the resolution of the simulation. The agents execute day plans consisting of visiting activity locations during the day. The agents’ decisions on how to make use of the transport infrastructure results, after an iterative simulation, in a relaxed demand on considered networks. Demand and consequently travel times are fully dynamic, i.e. known for every minute of the day. Featured modes are currently car and public transport.

In the current implementation a Modgen version (Turci et al., 2012) is used to simulate the demographic development of persons and households. Simulated aspects are migration, education, union formation, mortality and fertility.

After the estimation of the sub-models and calibration of their interaction, three scenarios have been simulated and evaluated on their spatial effects: road-pricing, densification and the combination of the two. The results show the potential of such detailed models but also that there is still some work necessary to make them applicable in praxis. A main topic re-
mains the operationalisation of suitable indicators for the assessment of sustainable development paths, even though some efforts have been undertaken in that direction (Proost and van der Loo, 2013). Therefore, the combination with capital stock model (Brunner et al., 2010), including governance processes and stakeholder participation, is explored. The project also somewhat neglected the integration of the developed tools into the planning process. This is made up for in a dedicated section of this paper.


Chelsea Tschoerner (Poster)

Sustainable transport politics as played out at the regional level – how “discourse coalitions” shape the sustainability discourse in policy-making for cycling and electric mobility in Munich, Germany

This PhD level research on how sustainability is currently governed looks specifically at the field of transport policy, that is, how transportation, and implicitly patterns of everyday mobility, are governed in a region. The Region of Munich in Germany is a complex setting where transport politics plays out and interacts at multiple levels of governance: the regional, city (or town) and neighborhood levels, which are shaped through (in part) the knowledge, rules and norms for doing established at state, national and European Union levels. Even though knowledge and norms concerning sustainability are increasingly developed at these “higher” levels of governance, it is at the local level where this plays out in practice. This research dives into everyday policy practice to study two areas of transport policy-making at this interconnected local level (regional, city and neighborhood) where debates on transport policy futures (especially concerning cycling and electric mobility) are very closely connected with the sustainability debate.

Aiming to better understand the concept of sustainability in the context of transport policy, it asks: How do discourse coalitions (Hajer 1995) shape the sustainability discourse in policy-making for cycling and electric mobility? Data is taken from a mixture of interviews, participation in policy-making practices, and multiple document sources (e.g. transcripts and proposals from the city council, and newspaper articles). Specifically, it looks at how “coalitions” or “mutually understood” groups of actors utilize story lines about sustainability to shape policy-making. It follows that through story lines, political actors with differing understandings of the world (i.e. differing discourses) come to develop common or mutual conceptions of complex social problems. These conceptions are developed, translated into policy and implemented in practice in the broader transport policy process.

Following an interpretive, argumentative approach to policy analysis, this project sees language as doing more than simply reflecting an individual’s perception of reality; it effectively constitutes reality, shaping it and at some points limiting, enabling or determining how reality is to be understood (Fischer and Gottweis, 2012, p. 8). A discourse analysis studies how shared understandings are developed and change over time. It studies language and practices, and interprets the discursive structures which shape the way concepts like sustainability are communicated. Most importantly, this type of discourse analysis places special emphasis on the practices through which a given discourse is produced, the socio-historical context of production and temporal (or time) aspects—that is, how a discourse develops and changes over time.

This research follows that sustainability discourse play an important role in shaping the development of transport policy as well as everyday mobility patterns in urban regions. Cycling and electric mobility both play a central role in local and global promotion for “sustainable
mobility”. More important though is the role certain discourses have in governing change, or transition. Here, empirical research and studies of the way transport policy takes place in practice are central for grasping the roots of certain problem-framings, and why society has and is governed in a certain way. By understanding, engaging with and reflecting on the roots of our problem-framings, we can better navigate the complex transition to sustainability.

This abstract aims to contribute to the workshop by providing insights on normative discourses on sustainability in transport policy. It can contribute to discussing how sustainability is defined in practice and how power plays out in transport policy, in terms of how and why coalitions of actors come to legitimize certain perspectives concerning sustainability and to implement these perspectives in practice. More broadly, this PhD hopes to develop insights concerning how the development of new story lines (and their roots) have helped to reframe debates on cycling and electric mobility over the period of 2002-2014, and to identify and critically analyze where story lines have limited or hindered these new perspectives.
