Sociocultural dimensions of mobility transitions to come: introduction to the special issue

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ABSTRACT

Mobility is on the move. Not least due to the COVID-19 pandemic as well as symptoms of socio ecological crisis, the present mobility systems are increasingly questioned and contested all around the world. In this context, the special issue aims to illuminate the role that socioculture plays in mobility transitions, thereby questioning technocentric views on mobility transitions. It focuses on the following overall questions: How is future mobility portrayed and constructed in current discourses? Which role do or can different kinds of actors play in transitions toward sustainable mobility systems? How are urban mobility cultures changing? Which kinds of new practices and mobility patterns emerge? Do future mobilities re-enforce existing sociotechnical regimes and social inequities or create new ones? In the first part of this introductory article, we give an overview of existing conceptions of sociocultural dimensions of spatial mobility. Furthermore, by drawing on Pitrim Sorokin’s understanding of socioculture, we elaborate a framework that allows us to classify the different contributions to this special issue and to relate them to each other. In the second part of this introductory article, we briefly introduce and discuss the various contributions.

Introduction

The present configuration of international, regional, and local mobility systems raises major challenges for sustainable development. Many cities and regions are struggling with congestion, air and noise pollution, road-safety issues, space-use conflicts, degradation of urban landscapes, harmful emissions, and mobility-imposed forms of social exclusion (Banister 2005). Since the transport sector is one of the main contributors to anthropogenic climate change, progress in terms of the reduction of mobility-related greenhouse-gas (GHG) emissions is an important and pressing societal task. However, while many countries are succeeding with “greening” their energy systems, progress in the transport sector often fails to materialize (see, e.g., BMWi 2018, 77; EEA 2019, 11). This unfortunate situation impedes the achievement of overall emission-reduction goals necessary to channel the impacts of global warming and the related risks (such as droughts, floods, and other extreme weather conditions which presumably bring about food and drinking-water shortages and compound processes of rural depopulation and poverty) (IPCC 2019, 19f).

Despite the stagnation in terms of sustainability, the transport sector is in transition. Growing legitimacy problems of leading actors – notably both car manufacturers and interest groups – generate potential for change. Mobility service providers, sustainable lifestyle activists, citizen initiatives, and social movements as well as some policy makers put the current system of automobility (Urry 2004) under pressure. Moreover, digitalization inspires future visions of novel forms of mobility. However, both among the public and to some extent also in the academic debate, the sociocultural dimension of mobility is often absorbed by the focus on ecological pressures, disruptive technological innovations, economic and...
political coercions, and so forth. A technocentric view on (sustainable) mobility transitions is still dominant while the sociocultural dimensions of mobility remain rather neglected. This technocentric view is accompanied by a widespread hope that technological developments and innovations will bring about and facilitate the necessary sustainable changes (Graf and Sonnberger 2020).

Indeed, emergent trends related to shared mobility driven mostly by information and communication technology (ICT) innovations, electrification of automobile, electrified micro-mobility vehicles such as pedelecs and e-scooters, big data to facilitate “smart” organization of traffic, apps for encouraging inter-modal mobility, and autonomous vehicles are increasingly gaining ground in everyday life or at least in media discussions. Moreover, the hype around digital transformation has spurred vivid public debates about the future shape of the transport sector. While many regard these trends, developments, and innovations as merely technologically driven, science and technology studies (STS) scholars especially have emphasized for decades that technology and society are deeply intertwined and separating technological from societal change would lead to purely artificial boundaries (Latour 1990; Jasanoff 2004).

In this special issue, we aim to contribute to a deeper understanding of the sociocultural dimensions of ongoing mobility transitions. We aim to dive into alternative and innovative approaches to transitions in the mobility sector and to elaborate on avenues for future research. Together with an interdisciplinary group of international researchers we ask how the mobility culture to come can be accessed. How is future mobility portrayed and constructed in current discourses? Which role do or can different kinds of actors play in transitions toward sustainable mobility systems? How are urban mobility cultures changing? Which kinds of new practices and mobility patterns emerge? Do future mobilities re-enforce existing sociotechnical regimes and social inequities or create new ones?

In this introduction to the special issue, we map out the sociocultural dimensions of mobility and how they relate and contribute to mobility transitions to come. We are going to argue that the sociocultural is an integral part of mobility transitions and that questioning the technocentric paradigm requires a profound and extensive understanding of the sociocultural to be able to articulate such dimensions of mobility transitions. In the following section, we provide a short overview of literatures that have questioned the technocentric paradigm in the past. We then briefly discuss two approaches that are in our view central for developing an understanding of the sociocultural dimensions of mobility: the mobilities paradigm and the mobility culture framework. After constructively assessing these two approaches, we introduce Sorokin’s (1957, 1962) understanding of socioculture and combine it with the mobilities paradigm and the mobility culture framework. With the help of Sorokin’s understanding of socioculture – which he describes with the terms personality, society, and culture – we outline entry points that are, in our understanding, useful to research the sociocultural dimensions of mobility transitions to come. In adding these terms to the mobility frameworks, we formulate a comprehensive heuristic tool to approach the sociocultural dimensions of mobility. For the discussion of the articles in this special issue, we raise the question how each of them deals with the sociocultural dimensions of mobility as we understand them and what we can learn concerning the constitution of the sociocultural dimension of mobility.

**Questioning the technocentric view on mobility transitions**

The technocentric view stands in contrast with contemporary social theorizing on technological and ecological change emphasizing the co-constitution of technology, environment, and society (Jasanoff 2004; Latour 1993; Rommetveit and Wynne 2017). Many years ago, scholars such as sociologist John Urry also started problematizing that there is not enough “society” in the study of transport (Urry 2007) and that a technocentric view on mobility “often neglect[s] the ‘why’ and ‘for what’ reason movement patterns are realized” (Freudendal-Pedersen and Kesselring 2016, 575). In addition, studies in sustainability research have problematized the belief in “ecological modernization” and the “green economy” approach, both heavily reliant on technological fixes for environmental ills (Jackson 2008; Maniates and Meyer 2010). As research on so-called rebound effect shows, technological progress oftentimes paradoxically increases resource use and emissions (Sonnberger and Gross 2018). The idea of social and ecological sustainability in ecological modernization and green economy approaches can in particular also be questioned from a strong sustainability perspective (Lorek and Fuchs 2013; Davies 2013) or when considering the social aspects of mobility from an environmental justice or social inequality point of view (Walker 2012; Sheller 2013, 48).

Because of the dominance of a technocentric view on mobility, the sociocultural dimensions of mobility transitions seem to be frequently overlooked leading to reduced significance in agenda-setting processes of policy making, political planning, goal setting in transition strategies, and allocation of funding for research and development activities as well as for the real-world implementation of mobility solutions. Nevertheless, the
objections from scholars of such diverse fields as sustainability studies, mobilities studies, STS, transition studies, and others have challenged the established technocentric view and stimulated the academic and public debate. Not surprisingly, research carried out over the past two decades has clearly demonstrated the close connection of society, technology, movement, and culture in contemporary mobility systems.

In the field of international relations, for example, researchers have contributed to discussions relating mobility to security and subjectivity (Aradau 2016; Aradau and Huysmans 2009). Furthermore, considerable thought has been devoted to alternative modes of mobility, for example, enhancement of mobility for pedestrians and bicyclists (Deffner et al. 2012; Smith and Hall 2016). In line with an environmental justice perspective, scholars have investigated immobilities, for instance, in the context of disability studies (Goggin 2016; Murray, Sawchuk, and Jirón 2016). Practice theory-inspired research has shown how mobility patterns emerge and stabilize and how they are related to everyday practices such as childcare, cooking, and shopping (Cass and Faulconbridge 2017; Barr 2015). The “critical triad” of race, class, and gender has also been applied to a wide range of mobility issues (Daggett 2018; Manderscheid 2018; Nicholson 2016; Tyfield and Blok 2016). Especially “class” as an analytical concept has proven to be a fruitful basis for research on mobility and social inequality (Dangschat 2018; Cass, Shove, and Urry 2005) and is also applicable to the study of lifestyle-related mobility patterns (Götz 2007; Götz et al. 2002; Dangschat 2018). Furthermore, there is comprehensive research on the symbolic meaning and cultural status of mobility and cars in particular (Wells and Xenias 2015; Miller 2001).

The above-mentioned perspectives recognize changing entitlements in the formation of global and regional sustainability norms. Norms of technological innovation and ecological modernization are reconstructed in parts of the transformation discourse (Stockmann and Graf 2019). The technocentric view brings about serious socio-ecological implications by stabilizing the dominant regime of automobility (Geels et al. 2012). As Freudendal-Pedersen and Kesselring (2016, 576) put it, the “technocentric focus… is on ideal of flow and ‘zero friction’ [and] refers to a neoliberal concept of economy” laying the ground for “the dominant planning paradigm… This reproduces the perception of the car as a mobility artefact without serious alternatives.”

**Mobility as culture**

In the context of research on mobility that takes seriously the close connection of society, technology, movement, and culture, two approaches are especially salient due to their importance to the field and to the analysis of mobility transitions: the mobilities paradigm and the mobility culture framework. We describe both of these approaches in turn in the discussion that follows.

What has become the mobilities paradigm problematizes the dominance of the car and its related components such as streets, gas stations, and car-repair shops (Featherstone, Thrift, and Urry 2005). Beyond questioning the system of automobility, the mobilities paradigm references all kinds of movements and non-movements “as constitutive of economic, social and political relations” ( Büscher and Urry 2009, 100) and distances from transport geography (Cresswell 2011). Instead, it focuses on the “mobility of people, products, and knowledge” and aims at reworking questions of policy transfer (McCann 2008, 885; Peck and Theodore 2010; Temenos and McCann 2013). Scholars working from this perspective focus on the reconfigurations of public and private life by new technologies, communications, and infrastructures (Sheller 2013, 48).1

In the mobilities paradigm, travels and movements are generative in so far as “there are various assemblages of humans, objects, technologies, and scripts that contingently produce durability and stability of mobility” (Büscher and Urry 2009, 102). By this means, the mobilities paradigm critically questions stereotypical narratives on the “desirability and novelty of mobile life” and asks “how mobilities are changing the world in complex, subtle and powerful ways” (Adey et al. 2014, 1f).

Besides conceptualizing and researching the interplay between society, technology, movement, and culture, the mobilities paradigm is also one of the few approaches to mobility that explicitly considers the unpredictability and uncertainty of future developments and, at the same time, tries to critically scrutinize emerging mobility trends and developments. Thus, mobilities scholars raise future-related questions that are essential for researching the sociocultural dimensions of mobility. They address questions such as

[W]hat are the key social, ethical, political issues that relate to mobility? What kinds of futures should mobilities-oriented social research generate? How does and how should mobilities research, in intersection with other analytical approaches, move futures into view? [And] How does and how should this encounter enable responsible future-shaping? (Büscher, Sheller, and Tyfield 2016, 486)

Besides spurring empirical analysis and conceptual considerations of mobility futures, these questions also reflect on the role science and research can – and should – play in these developments. For example, when Büscher and Urry (2009) ask what kind of research should be carried out or what enables responsible future shaping.
As Büscher and Urry (2009, 101) elaborate, movement is understood by the mobilities paradigm as a multifaceted process of travel which can take different shapes. They outline which processes of mobility can be studied empirically:

- **Corporal mobility**: physical movement of people (commuting, migration, holiday trips, and so forth) ranging from daily commuting to once-in-a-lifetime migration from one country to another.

- **Mobility of objects**: physical movement of objects such as goods or products.

- **Imaginative mobility**: mental movement effected through talk, media image, photos, and so forth.

- **Virtual mobility**: movement through virtual spaces, often in real time, such as in the case of Internet-bank transfer or digital conferences.

- **Communicative mobility**: movement of information and ideas through person-to-person contact with the help of face-to-face communication, messages, texts, letters, and telephone in more or less ritualized patterns or as Büscher and Urry (2009, 102) put it: “via embodied conduct.”

In sum, the mobilities paradigm offers a rich and comprehensive understanding of movement, which enables a sophisticated conceptualization of the interplay between society, technology, culture, and movements. It has spread into different disciplines and is still inspiring interdisciplinary research which builds on the interconnectedness of material practices, subjectivation processes, and discourses (Büscher et al. 2020; Jensen et al. 2020).

A second approach for the analysis of the sociocultural dimensions of mobility is the mobility culture framework (see, e.g., Deffner et al. 2006, 2012; Götz, Deffner, and Klinger 2007). While the mobilities paradigm is internationally established, the mobility culture framework is mainly known in the German-language region and is usually referenced for comparative studies (Bosen and Leicht-Scholten 2020; Haustein and Sick Nielsen 2016; Klinger, Kenworthy, and Lanzendorf 2013; Klinger and Lanzendorf 2016). As one can see in the figure below, Jutta Deffner and colleagues identify different areas of influence such as politics and urban planning or communication that are constitutive of what they call mobility culture. The different areas of influence have an impact on mobility culture through various channels such as regulations, discourses, and infrastructures. The mobility culture framework thereby understands culture as follows, pointing to the interrelatedness of technology and culture: “In brief, culture can be seen as a combination of ‘things’ created by societies and their symbolic meaning” (Deffner et al. 2012, 6). Figure 1 illustrates the mobility culture framework. The framework integrates and describes components such as politics, urban planning, built urban space, socio-economic situation of a city, lifestyles and milieus as well as communications which cumulate in being important for a mobility culture, for example, in a specific city. However, the value of Deffner and colleagues’ (2006) mobility culture framework does not only reside in considering the reciprocal co-constitutive relations of culture, politics, communication, and so forth, but also in adding “soft” components of mobility cultures such as discourses with established patterns of mobility research (e.g., travel behavior).

What can we learn from these two approaches about the sociocultural dimensions of mobility? The mobility culture framework explicitly refers to culture and provides a comprehensive heuristic for researching different facets of mobility culture. While the mobility culture framework captures a broad and explicit array of dimensions that constitute mobility culture, it to some degree loses sight of individual and collective actors and their relations and qualities, which are also a constitutive part of mobility systems. Although “lifestyles and milieus” refer to actors, their significance primarily seems to be related to travel behaviors and mobility patterns. The broad spectrum of different qualities of actors as well as social interactions as constituent parts of

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**Figure 1.** The mobility culture framework (Deffner et al. 2012, 6).
(mobility) culture tend to drop out of immediate sight. However, one of the strengths of the mobility culture framework is that it explicitly locates regulatory and planning practices in the realm of mobility culture. Thus, such practices can eventually be understood as a facilitative factor of mobility-related social interactions.

In the mobilities paradigm, in contrast, movement itself is constitutive for the understanding of culture. “Culture” becomes one factor out of many that shapes and is shaped by different forms of movements. As a consequence, the mobilities paradigm works with a broad definition of mobility, one that understands mobility as the actual and virtual movement of people, things, and ideas. It even aims to establish a new form of movement-based social science. In contrast to the mobility culture framework, the mobilities paradigm does not propose explicit and clearly distinct factors shaping mobility. Being based on a very elaborate notion of the different facets of movement, going far beyond the everyday physical movement of people and objects, it emphasizes the complexity of mobility-related phenomena. However, this feature makes it difficult to apply the mobilities paradigm for an ad hoc categorization of relevant sociocultural phenomena.

“Personality, society, and culture” as cornerstones of socioculture

Pitirim Sorokin, a Russian-American sociologist mainly concerned with the study of drivers and processes of sociocultural change (see, e.g., Sorokin 1957), developed an elaborate and comprehensive understanding of socioculture. Following Sorokin, socioculture includes aspects that refer to actors (emotions, needs, behavioral dispositions, self-identity, and so forth) and to the relational structures among individual and/or collective actors (social inequality, power differences, division of labor, gender relations, groupings of individuals such as milieus). Sorokin also considers shared meanings and values that are, among others, objectified in institutions, material artifacts, cultural products (e.g., movies and books), and so forth. To be precise, socioculture in Sorokin’s understanding encompasses the following three elements (Sorokin 1962, 63–64):

- Personality (actors as interacting entities, users, bearers, and creators of meaning, values, and norms).
- Society (totality of interacting actors with their relationships and processes).
- Culture (“totality of the meanings, values, and norms possessed by the interacting persons and the totality of the vehicles which objectify, socialize, and convey these meanings,” for, among others, institutions and material artifacts) (Sorokin 1962).

Even though Sorokin distinguishes between the three elements of personality, society, and culture he simultaneously emphasizes that the distinctions are only for analytical purposes. In fact, the three elements are interdependent and inseparably intertwined. There is, for example, no society as a social entity without the interaction of different kinds of individual or collective actors (he thereby speaks of personalities).

In our view, Sorokin’s notion of socioculture provides fruitful ground for conceptualizing the sociocultural dimensions of mobility. It enables us to distinguish central elements of socioculture that are of intuitive relevance for the study of mobility, without being overly complex and thereby complicate ad hoc categorization of empirical phenomena. In combination with the multifaceted understanding of movement proposed by the mobilities paradigm and the stress on the material and regulatory aspects of mobility culture emphasized by the mobility culture framework, Sorokin’s concept of socioculture builds the core of our conceptualization of the sociocultural dimensions of mobility. This conceptualization is illustrated in Figure 2.

The different forms of movement as introduced above are located in the center of Figure 2. Following Büscher and Urry (2009, 101) these interrelated “mobilities’…produce social life organized across distance and [which] form (and re-form) its contours.” “Social life,” as Büscher and Urry call it, is represented in the second circle, which is seamlessly connected with the movement section. In Figure 2, the second circle encompasses Sorokin’s conceptions of personality (i.e., individual and collective actors and their qualities), society, and culture in a slightly modified way. The combination of Büscher and Urry’s understanding of movement with the conceptualization of socioculture by Sorokin helps us, on the one hand, to address movements in their broad range and, on the other hand, to approach “social life” in a less abstract way.

With this conceptualization of the sociocultural dimension of mobility, we aim to more easily identify empirical patterns seemingly important for future transitions in the field of mobility. Personality, for example, matters when it comes to people who strongly favor or oppose specific options of physical movement. Some people do not like to ride a train, while others prefer the notion of freedom in the car, and still others attach importance to riding a bicycle. Thus, personality understood as an
actor-specific quality is an important aspect of how movement is enacted. A closer look at culture shows that we are surrounded by artifacts, objects, products, and norms that are central to our mobility and for the mobility of others. Infrastructures as manifestations of social norms and preferences, for example, inhibit the mobility of certain individuals while they enable or disable others to satisfy their needs (e.g., car-oriented mobility systems disadvantaging pedestrians and bicyclists). It is important to note that artifacts, norms, and so forth do not stand on their own. If we classify, for example, bicycles as a material artifact, their meaning strongly relates to the people who prefer this mode of travel. Moreover, if people do not like riding a bicycle, the existence of bike shops in a city would be meaningless and economically pointless. By this, we see the strong connection of culture with societal relations between actors. In a city where people do not tend to ride bicycles, bike shops most likely will not be included in regional economic development programs. In other jurisdictions, they are likely to be highlighted in promotions precisely because policy makers hope to facilitate the use of bicycles for transport by ensuring the availability of relevant services because the city is accountable for meeting prescribed air-quality targets.

Another example for the interrelatedness of the three elements is crosswalks. Crosswalks without pedestrians are stripes on the street. Without their usage as a kind of footbridge – here it comes to societal relations – and without the regulation for cars to yield and to provide pedestrians with a save option for traversing the street, the crosswalks would not be able to demonstrate their potential. This function is dependent on the mobility culture we experience, since car drivers differently interpret their duty to stop just as such practices provide pedestrians with their ability to navigate the street safely. This example also illustrates the influence of governance, accountability, and regulation of social relations in the field of mobility as an important factor in shaping movements.

The outer circle finally highlights the connectedness of the two inner circles. Building on this conceptualization of the sociocultural dimensions of mobility, we propose the following working definition of socioculture of (spatial) mobility:

The sociocultural dimension of (spatial) mobility is constituted by the dynamic interplay of certain characteristics of individual and collective actors, their interactions and structured relations as well as shared meanings, material artefacts, and the built and non-built environment and thus bringing about
different forms of corporeal, physical, virtual, imaginative, and communicative (non-)travel of people, things, and ideas.

Using our conceptualization and working definition as a foundation, we now discuss in the following section how the articles in the special issue theoretically and empirically approach the sociocultural dimensions of mobility.

Overview of the special issue

The articles in this special issue are divided into two groups. The first group mainly focuses on the making, re-configuring, and representing of meaning through discourses, narratives, or social representations and includes contributions by Nils Stockmann and Antonia Graf, Theresa Kallenbach, Mauro Sarrica and colleagues, and Michael Mögele and Henrike Rau. The second group considers how social and/or technical innovations become embedded in societal relations, thereby being both a driver and object of change. This latter assemblage includes articles by Bård Torvetjønn Haugland and Tomas Moe Skjølsvold, Tim Fraske and Bernd Bienzeisler, Malve Jacobsen, and Elisabeth Svennevik and colleagues. However, it must be acknowledged that this distinction is not boldly demarcated because the different elements of socioculture are mutually constitutive and do not lend themselves to clear delineation.

We start with the article by Nils Stockmann and Antonia Graf entitled “Polluting our kids’ imagination? Exploring the power of Lego in the discourse on sustainable mobility.” The authors explore the conception of sustainable mobility envisioned by Lego, the world’s largest toy company. Theoretically, Stockmann and Graf combine research on discursive business power from the field of international political economy with insights into the rituals of play from social psychology as well as perspectives associated with STS. Methodologically, they investigate how the sociocultural dimensions are potentially received and consolidated by Lego players. With the help of the “re-signification process of discursive power” the article conceptualizes “comprehending reception” potentially taking place while playing. From this vantage point, Stockmann and Graf deliver a qualitative-hermeneutic analysis of Lego building sets and commercials. They conclude that the company does not use its potential to deliver transformative stimuli that would promote sustainable future mobility. Instead, playing with Lego products encourages children to re-signify the norms of unsustainable mobility, especially the normalization of the car-centered built environment and an omnipresent fossil-fuel dependency. As implied by the framework outlined above on the sociocultural dimensions of mobility, the authors trace how “meanings, values, and norms possessed by the interacting persons and the totality of the vehicles which objectify, socialize, and convey these meanings” in material artifacts (Sorokin 1962, 63). The Lego bricks serve as artifacts that receive their meaning in the process of playing carried out by children and other players. The commercials highlighted in the article are cultural products that contain values and norms that promise a positive representation of the product. The analysis strongly relies on the building-block culture (artifacts), but also refers to the shaping of personalities and social relations in the process of playing.

The next contribution, by Theresa Kallenbach, is entitled “Narratives of urban mobility in Germany” and the article explores whether the debate on mobility is “on the threshold of a departure from the car-centered city.” Using ethnographic methods and qualitative content analysis, the author highlights issues pertaining to a putative mobility transition as discussed in German daily newspapers and by observing relevant public events. She conceptually refers to narratives, micro-narratives, discourses, and values. Citing Willy Viehöver and Maarten Hajer, Kallenbach defines narratives as structures of discourses which build up from the formation rules of discourse. Building on other sustainability research, she identifies stability/conservation, justice, and innovation as being constitutive of the discourse on sustainability. Kallenbach concludes that the narratives she detects are not able to change the discursive structure and the meanings that construct the car-centered city as a general leitmotif. Nevertheless, the narratives she describes speak of transformation of urban mobility culture itself. With respect to the newspaper articles, Kallenbach reasons that none of them questions the status quo of the car-centered city and the texts mainly deal with local issues and thus ignore global (sustainability) concerns. When it comes to public events, however, the tone is different and she notes that “what was so strikingly missing in the media is very present in the debates highlighted at the public events, namely a narrative of climate protection.” In light of the sociocultural dimensions of mobility, there are three aspects to mention. It comes not as a surprise that Kallenbach’s article on narratives is very much related to cultural manifestations such as newspapers as cultural products or public events as an institutionalization of cultural practices. Interestingly, her analysis is less focused on personality and societal relations compared to the other contributions in this special issue. Instead, “personality” and “relations” are represented on the
level of text and are embedded in discourse. The discourse is retold with the help of narratives where societal settings are prominent.

The article by Mauro Sarrica, Alessandra Rimano, Valentina Rizzoli, and Paola Passafaro is entitled “Are e-bikes changing the social representation of cycling? An exploration of articles on cycling in Italian online publications.” They submit a text corpus of 3,239 online articles on bicycling to a quantitative, algorithm-based analysis to identify social representations of e-bikes in the country. The authors show that the introduction of e-bikes as a material artifact with other qualities than conventional bicycles only slightly changes the social representation of bicycling in Italy that continues to be centered around safety and infrastructure issues and bike riding as a leisure activity. However, a novel symbolic connection also emerges. There are indications that e-bikes are responsible for introducing the theme of urban sustainability into the general discourse on bicycling. Although e-bikes are not more sustainable in terms of their life cycle than conventional alternatives, they may nevertheless have the potential to add the element of sustainability to the social representation of bicycling. The article illustrates how mobility-related symbolic meanings can change due to the real-world implementation of mobility innovations. Sarrica and his colleagues mainly refer to the component of culture as a sociocultural facet. However, changes in the symbolic meaning of specific forms of mobility (in this case bicycling) could also affect the personality element of the sociocultural dimensions of mobility by recruiting larger numbers of people with a green self-identity.

In the article “Cultivating the ‘car state’: a culturally sensitive analysis of car-centric discourses and mobility cultures in Southern Germany,” Michael Mögele and Henrike Rau examine current political negotiations regarding the future of the automotive industry in the German federal states of Baden-Wuerttemberg and Bavaria that comprise the heartland of the country’s automotive industry. They draw on the method of argumentative discourse analysis which they apply to policy documents and empirical material gathered through ethnographic fieldwork and semi-structured interviews with experts, stakeholders, and policy makers. Mögele and Rau identify two different storylines that they label “number one car state” (i.e., future mobility as an extrapolation of the dominant automobile regime) and “number one mobility state” (i.e., the diffusion of mobility services and a shift toward other non-motorized forms of transport as the future of mobility) and which show region-specific variations. While the storyline of “number one car state” is dominant and firmly established in both states, in Baden-Wuerttemberg “number one mobility state” represents a newly emerging, dynamic storyline which adds to the “number one car state” storyline though without replacing it yet. Nevertheless, tensions and conflicts arise between these two storylines. This article mainly focuses on the culture element of the sociocultural dimension of mobility by analyzing the construction of meaning through mobility-related discourses. However, the authors also demonstrate how the discursive construction of meaning is connected to practices of policy making that shape societal relations between actors (in this case, protecting the automotive industry from economic losses and ensuring its dominance as a key player).

Bård Torvetjønn Haugland and Tomas Moe Skjølsvold’s contribution to this special issue examines stakeholders’ future expectations regarding implementation of self-driving vehicles. Entitled “Promise of the obsolete: expectations for and experiments with self-driving vehicles in Norway,” the authors analyze both public responses to draft legislation for the testing of self-driving vehicles and semi-structured interviews with actors involved in the first field trial under the new law. A central finding is that there is a general expectation in Norway that self-driving vehicles will certainly spread soon and fast. The rise of autonomous and digital mobility technologies is perceived as a kind of external force that can hardly be influenced. Under such circumstances, the most reasonable strategy for society to deal with self-driving vehicles is to simply adapt to their requirements. The shared expectation of a certain and near-term breakthrough of self-driving vehicles is thereby used to justify the real-world testing of them. This development narrows the scope of potential mobility futures since deliberation about whether or not autonomous driving should actually be implemented is rendered unnecessary. Accordingly, the new law avoided even considering the technological requirements currently hampering the implementation of self-driving vehicles. Furthermore, the testing of autonomous mobility within existing infrastructures produces an understanding of self-driving vehicles that is shaped by these infrastructures, further contracting the scope of potential future applications. The article’s focus regarding the sociocultural dimension of mobility is on culture, and more specifically on the production of symbolic meaning in the context of future expectations and the meaning-ladenness of material artifacts, and their interplay with social relations shaped by policy-making activities. The authors ably characterize how future expectations diffuse into governance practices.
While all of the other contributions to this special issue refer to the spatial movement of people, Tim Fraske and Bernd Bienzeisler focus in their article “Toward sustainable traffic solutions: transitions in urban logistics regimes” on the mobility of objects as carried out in the context of city logistics. They examine the implementation of an app-based technology to regulate economic transport and delivery traffic. Their case study on smart loading zones in Barcelona does not only refer to the movements of goods but also to the artifacts used to govern contested space – in this instance loading zones in the dense and crowded Catalan capital. Fraske and Bienzeisler deploy a qualitative approach using interviews with various stakeholders and onsite observations. The information and communication tool at the center of their analysis is an app and thus a technical artifact that can be read as a cultural product providing an answer to the problematic situation created by competition over land. At the same time, it is a means of institutionalized interaction that helps to govern contested space. The authors’ analysis of the implementation of the app leads to new insights on innovation processes in a sociocultural dimension of mobility. Therefore, the success of a transition is highly dependent on the continuous upgrading of a technology that includes an ability to process user feedback. Fraske and Bienzeisler convincingly show that acceptance of the app by users not only refers to its functionality but also to changing expectations toward smart and sustainable urban development. The authors point to the need for ongoing optimization that should be ensured by policy makers and companies to facilitate sustainable business solutions. Otherwise, the authors argue in the case study at hand, innovative technologies are unlikely to realize their potential.

Malve Jacobsen utilizes an ethnographic approach in her article entitled “Co-producing urban transport systems: adapting a global model in Dar es Salaam.” She elaborates on the concept of co-production and shows how the implementation of the bus rapid transit system in the Tanzanian capital has been realized with the help of people who balance and compensate for the malfunctions of the technical system. Empirically, Jacobsen’s work is based on interviews she conducted while doing fieldwork in Dar es Salaam where she also took photographs and engaged in participant observation. In contrast to other contributions to this special issue, the author clearly indicates her position as the one who was responsible for collecting empirical data and reiterates the narrative of public transfer in Dar es Salaam. From the standpoint of the framework on the sociocultural dimensions of mobility, she stresses her situatedness as a subject doing the research. Accordingly, Jacobsen highlights for readers how the sociocultural dimensions of mobility are not only objects that are researched passively. Rather she shows that the way we approach these issues also matters – and potentially frames – the research output. Assessing the human activities that replace ineffectual smart devices, the author concludes that sustainable transitions depend more on sociotechnical practices and adjustments of user behavior than on technological innovation. In a sociocultural context of mobility, Jacobsen mainly refers to culture and societal relations. In terms of culture, the article operates on at least on two levels. First, she reflects, with the help of a post-colonial perspective, on the dominance of western worldviews in mobility research. Second, not only the busses, but also the tickets, selling points, and even coins can be seen as material artifacts that fulfill specific requirements in the interaction with customers, vendors, and consultants.

Elisabeth Svennevik, Tom Erik Julsrud, and Eivind Farstad show in their article “From novelty to normality: reproducing car-sharing practices in transitions to sustainable mobility” how the shared use of vehicles as a form of movement evolves. On basis of nearly forty semi-structured interviews with households that participate in car-sharing services in the Oslo area, they identify different ways in which car-sharing practices are (re-)produced, thereby highlighting the significance of the car-sharing practice’s relation to other everyday practices. As they reveal, doing car-sharing simultaneously contributes to the upholding of car-dependent practices (e.g., going skiing or on weekend trips to cabins in the mountains) and to the erosion of private car ownership. As such, in terms of sustainability, car-sharing has a dialectic nature. We learn from this article that certain practices of movement are enforced by the bundles of everyday practices in which they are embedded. However, this also entails that when changes in these assemblages occur, practices of movement are also affected. With regard to the sociocultural dimensions of mobility, this article refers in varying degrees to culture, social relations, and personality, and thus stresses the point that practices of everyday movement evolve from the bundles of everyday practice which both produce them and are also stabilized by them. Social relations, symbolic meanings, and actor-specific qualities such as skills and competences are among other factors shaping these sets of practices. In this regard, the sociocultural dimensions of mobility can be understood as being ultimately expressed in the performance of everyday practices.
Conclusion

In this introduction to the special issue, we have outlined the need to approach the sociocultural dimensions of mobility knowing that its role for a future transition toward a more sustainable system of mobility is difficult to describe. Reviewing the mobilities approach and the mobility culture framework shows that both scholarly perspectives raise interesting points for the understanding of mobility. While the mobilities approach delivers a comprehensive and society-constituting understanding of movement, the mobility culture framework highlights the meaning of culture and its regulatory content. To grasp empirical phenomena, and to consider the close connectedness of technological and societal developments without perceiving them as movement or as culture, we have suggested adding Sorokin’s understanding of socioculture to the debate. Socioculture, as Sorokin expresses it, includes insights that directly refer to actors. Such actor-related issues can be emotions, needs, attitudes, or even self-identity. Furthermore, socioculture for Sorokin is carried out with the help of relational structures among individual and/or collective actors. Such interaction constitutes societal relations and may impinge on gender relations and other power relations determined by class or race. Sorokin highlights the importance of shared meanings and values for socioculture. They are not only relevant for identity formation of actors but also include the objectification in material artifacts and cultural products. On these grounds, we added Sorokin’s emphasis on personality, societal relations, and culture to existing conceptions of mobility culture with the aim of creating a more comprehensive and empirically accessible picture of the sociocultural dimensions of mobility, which in our understanding is crucial for gaining a deeper understanding of mobility transitions to come.

In this overview, we have sought to inquire how the mobility culture to come can be accessed scientifically. How is future mobility portrayed and constructed in current discourses? What role do – or can – different kinds of actors play in transitions toward sustainable mobility systems? How are urban mobility cultures changing? Which kind of new practices and mobility patterns emerge? Do future mobilities reenforce existing sociotechnical regimes and social inequities or create new ones? Coming back to these questions that we have set up in the beginning of this article to the special issue, we have to admit that we still seek answers to most of these questions. Nevertheless, we gain important insights on how transitions proceed, where stumbling blocks hinder developments, and which forms progress in transition processes take. We are, for example, able to see that discourses on more sustainable city planning, modes of transport, and economic welfare due to sustainability gradually enter the car-centered mainstream discourse and thus become a matter of fact. However, these insights cannot mask the persistence of established regimes which at its core seem to survive change – for instance when it comes to the continuous emphasis given to the superiority of technical progress.

As we have seen, the articles approach the sociocultural dimensions of mobility transitions to come in different ways. However, all of them capably show that sociocultural dynamics are a major driver of mobility transitions no matter the place or the scale. Thus, as elaborated above, technological developments are closely intertwined with sociocultural underpinnings. By stressing the sociocultural dimensions of mobility transitions we therefore do not aim to replace a constricted technocentric perspective on mobility transitions by a similarly limited sociocultural perspective. We rather – like many before us – call for an understanding of technology as both a sociocultural product and a driver of sociocultural change. This point is variously elaborated in most of the articles in this special issue and the authors show that technical artifacts are meaning-laden and also are appropriated by different kinds of societal actors. However, although there is already a considerable body of mobility research based on sociocultural perspectives, the recent struggles with the “greening” of transport systems show that the consequences of a sociocultural understanding of mobility have not yet reached the political agenda to effectively contribute to problem-solving.

Finally, we want to underline that our proposed framework for capturing the sociocultural dimensions of mobility should be seen as a heuristic that is intended to assist researchers in locating and differentiating certain mobility-related phenomena. We are confident that it provides a language for considering fuzzy developments that are hard to pinpoint and are otherwise simply regarded as social or societal factors. We hope that this special issue provides some food for thought for researchers and practitioners who want to go beyond the understanding of mobility transitions as merely techno-economic transformations.

Notes

1. The understanding of technology in the mobilities paradigm is different from the understanding of technology in the above problematized “technocentric” view. In the mobilities paradigm, technology and society co-constitute each other. We are “never…simply ‘human’ [and] purely social” (Büscher and Urry 2009, 100, citing Latour) as well as nothing is ever purely technological. To go a step
further, one could even state that the problem of the technocentric view lies in the artificial separation of the social from the material and biophysical world.

2. However, e-bikes may be more suitable for replacing car trips than conventional bicycles and thus can be regarded as having a higher sustainability impact than conventional bicycles.

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