Mobility Challenges

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Abstract

This article takes point of departure in the challenges to understand the importance of contemporary mobility. The approach advocated is a cross-disciplinary one drawing on sociology, geography, urban planning and design, and cultural studies. As such the perspective is to be seen as a part of the so-called 'mobility turn' within social science. The perspective is illustrative for the research efforts at the Centre for Mobility and Urban Studies (C-MUS), Aalborg University. The article presents the contours of a theoretical perspective meeting the challenges to research into contemporary urban mobilities. In particular the article discusses 1) the physical city, its infrastructures and technological hardware/software, 2) policies and planning strategies for urban mobility and 3) the lived everyday life in the city and the region.

Keywords

Mobility, Mobility Turn, Urban Studies

Introduction

This article takes point of departure in the challenges to understand the importance of contemporary mobility. The approach advocated is a cross-disciplinary one drawing on sociology, geography, urban planning and design, and cultural studies. As such the perspective is to be seen as a part of the contemporary 'mobility turn' within social science. The perspective is illustrative for the research efforts at the Centre for Mobility and Urban Studies (C-MUS), Aalborg University. From work in a regional think tank under C-MUS we want to present a simple model for a research agenda and suggest that it relate to a three-layered research framework that we claim cover quite substantial issues of relevance. Needless to say, more could be included but as a minimum an urban mobilities research agenda that takes the contemporary challenges serious must deal with at least three major issues; 1) the physical city and region, its infrastructures and technological hardware/software, 2) policies and planning strategies for urban mobility and 3) the lived everyday life in the city and the region. In this article we will first shortly present the so-called 'mobility turn'. Thereafter we shall focus on the three major issues ending the article with a short discussion of the future research challenges and perspectives.

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The mobility turn and C-MUS

Before exploring the three different issues as a way to understand the contemporary mobility challenges, we will briefly describe the theoretical foundation of the work presented in the article. As mentioned above, the article takes a theoretical starting point in what has been termed 'the mobility turn' (Urry 2007). Today, various forms of mobilities are a fundamental component of modern urban life (Gilbert & Perl 2010; Lucas et. Al 2011). Travel with cars, trains and airplanes have increased markedly during the last decades. Likewise the use of virtual communication technologies (e.g. Internet, SMS, Facebook, videoconference etc.) as well as other parts of people's social life also suggests that we are more mobile than previously (Gordon & Silva 2011). In Denmark (a country of 5.5 million inhabitants), car driving increased from 1984 to 2004 by more than 50%, and more than 100,000 vehicles drives everyday on the busiest Danish motorway (Infrastrukturkommissionen 2008). Train traffic has at the same time increased by 30%, while the yearly number of air travellers through Copenhagen Airport has passed 21 million travellers (www.cph.dk). In total 4.4 million Danes own a mobile phone, and in 2006 they sent more than 10 million SMS's, which is 259% more than in 2003 (National IT and Telecom Agency, Denmark 2006). 86% of the Danish population have access to the Internet and more than 3 out of 4 use it on a weekly basis (Statistics Denmark 2011). Moreover, commuting has increased by 20% between 1993-2001, which reflects a more mobile Danish labour force (www.im.dk). The average Dane thus moves 12,900 km per year. Out of this is 85% based on car use, followed by train and busses. 3% of the total amount of travel is made on bike (Statistics Denmark 2011).
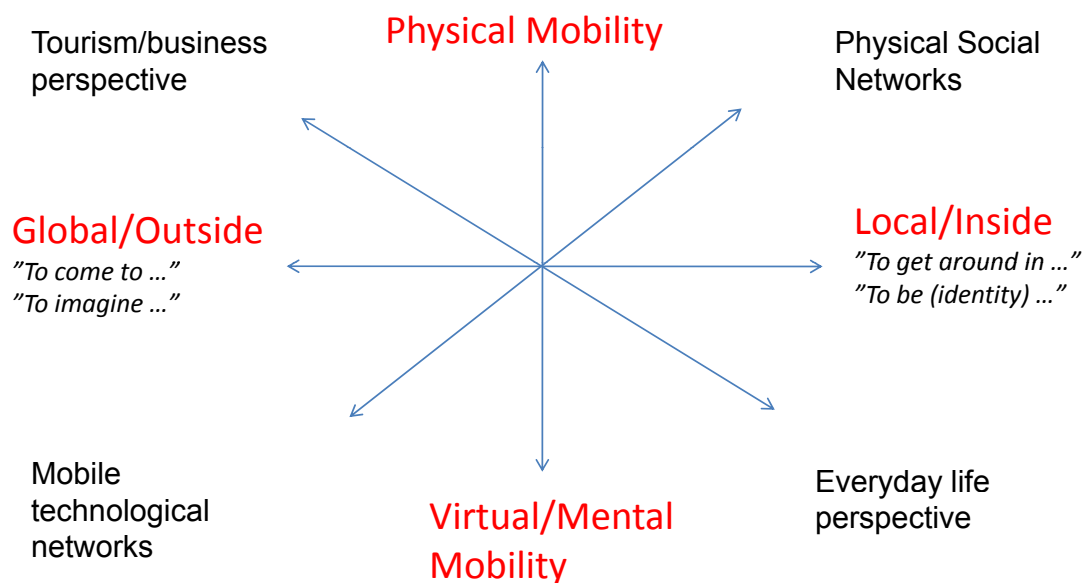
This means that the Danish society – as many other western societies - in many respects is a 'society on the move' (Gilbert & Perl 2010; Lash & Urry 1994). As Urry point out this development particularly raises 'Issues of movement for some, or too much for others, or of the wrong sort, or at the wrong time, are, it seems, central to many people's life and to the operations of many small and large public, private and non-governmental organisations' (Urry 2007: 6). The concept of 'mobilities' therefore focuses on the complex intersections between diverse forms of physical travel of people; physical movement of matter and objects; virtual travel on the Internet; digital movement of images, messages and information; and communicative travel via text messages, telephones, emails, etc. (Elliott & Urry 2010; Jensen & Richardson 2004; Urry 2007; Creswell 2006; Sheller & Urry 2006). Mobilities are partly seen as constitutive for the structures that frame social life, and it is within these mobilities that cultural patterns, actions, and identities are produced and reproduced. But, at the same time, social structures of different kinds (e.g. economic, political and spatial) are seen as constitutive for the ways in which mobilities develop. The core of the new mobility research is reflected in the description of the Centre for Mobility and Urban Studies (C-MUS), which was established at Aalborg University in 2008 with a starting point in this approach:

> *'In particular the research undertaken within C-MUS aims at exploring policies and planning approaches to contemporary mobility in urban areas and regions. Furthermore, C-MUS aims at understanding the implications of transformations in mobility patterns for the everyday life of citizens across the world, with particular emphasis on understanding the way infrastructures work together (or against) physical mobility, with repercussions for cultural consumption, social interaction, environmental sustainability and aesthetic quality. In other words, what makes the research done within C-MUS innovative and trans-disciplinary is its ambition to analyse the production (e.g. design, planning gend management) and consumption (e.g. use, reworking and resistance) of mobilities within a unified framework ...'* (www.c-mus.aau.dk)

This illustrates a research agenda that places mobility at the heart of the analysis, not by focusing on one particular form of mobility, but by involving various forms of mobilities and the relations between them. The ambition is to build a new cross-disciplinary research platform drawing on sociology, geography, urban planning and design, and cultural studies.

As an activity within C-MUS that reaches out to the wider community, a regional think tank titled '*Mobility Challenge North Jutland*" was started in 2010 by the authors of this article (other members of C-MUS are active here as well). In the think tank regional businesses, local authorities and other stakeholders come together in 'off the beaten track' locations (workshops have been held in the new Thy National Park and in the former Silo at the harbour in Frederikshavn). The key rationale is „*to put mobilities research to work*" in the region by addressing challenges identified in common by researchers, stakeholders and planning practitioners (there is also a co-founded PhD stipend as an explicit outcome of this dialogue). So from an insight into the importance of relating the physical infrastructures and mobility technologies, the policies and the planning strategies to the lived life of the everyday life we have created a model capturing key issues of the 'mobility challenge' (figure 1).

The 'Mobility Challenge'

Tourism/business perspective

Physical Mobility

Physical Social Networks

Global/Outside
"To come to …"
"To imagine …"

Local/Inside
"To get around in …"
"To be (identity) …"

Mobile technological networks

Virtual/Mental Mobility

Everyday life perspective

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Figure 1: The Mobility Challenge

In particular we should stress that the local-global and the physical-digital dimensions are addressed with an understanding that neither can be thought of without the other. Furthermore, a key set of issues emerge from this juxtaposition such as 'how do people come to the city and region?', 'how do they imagine the city and the region?', 'how do people get around in the city

and region?' and 'how are people in this city and region?' These important questions have been debated both with an eye to the business opportunities and the everyday life cultures as well as to the understanding of how physical infrastructures 'play together' with mobile technologies and digital systems. Thus the think tank have covered issues from local seaside tourism over public bus service frequencies to wireless digital connections and services such as Intelligent Transport Systems as well as linkages between cities and airport. The model does not point at any immediate solutions but is rather an attempt to identify a common agenda of important issues (as well as on insisting on the interdependency of these).

From this short introduction to C-MUS and its think tank we will now offer a slightly more thorough and theoretical presentation of three dimensions of the research agenda for the contemporary mobility challenges; 1) the physical city and region, its infrastructures and technological hardware/software, 2) policies and planning strategies for urban mobility and 3) the lived everyday life in the city and the region.

The physical city and region, its infrastructures and technological hardware/ software

The first element, which we look at, is the physical city and region, its infrastructures and technological hardware/software. Infrastructures and the technological hardware/software are essential to the flows of citizens, goods, information, money, and ideas that take place within the city and the region, and these material systems link to a number of more or less invisible mechanisms of stratification (Easterling 2011; Farias & Bender 2010; Varnelis 2008). Therefore we start by arguing that it is impossible to understand and research mobilities within the city without involving a material dimension (even the Internet has a 'geography' that matters). In the following section, we will also consider how the new infrastructures and technologies are related to production of meaning. It functions as a 'logic of actions' and creates new arenas and tools for identity construction and social interaction.

Graham and Marvin particularly focus on the changing relationship between infrastructure networks, the technological mobilities they support, and the cities and urban societies (Graham & Marvin 2001: 8). They show how new technologies and increasingly privatised systems of infrastructure provision (telecommunications, highways, urban streets, energy and water) are supporting what they call the 'splintering of metropolitan areas' across the world (Graham & Marvin 2001: 33). The metaphor of 'splintering urbanism' refers to the dialectical and diverse sets of processes surrounding the parallel unbundling of infrastructure networks and the fragmentation of urban spaces. Graham and Marvin focus not only on a number of unexplored urban and social effects of the new technologies, but also on various patterns of social polarisation, marginalisation and de-democratisation which are particularly relevant for architects and urban planners who are interested in the roles of network infrastructure and mobilities that shapes the future of our cities. Through a socio-technical way of understanding urban change they look at more than 100 cases concerning such elements. One of these cases is about how new technologies establish mechanisms of stratifications at the airport (Graham & Marvin 2001: 3). In many ways, the airport reflects a number of new and invisible stratification mechanisms that today go hand in hand with the establishment of new infrastructures and technologies in many western cities and regions (see also Bauman 1999). Urry approaches this material dimension of

mobilities within the city through the notion of 'systems' (Urry 2007: 12). Systems make movement possible and include ticketing, oil supply, traffic control, barcodes, bridges, timetables, surveillance etc. (Kitchen & Dodge 2011; Rodrigue, Comtois & Slack 2009). According to Urry, systems 'permit predictable and relatively risk free repetition of the movement in question' (2007: 13). It is systems that enable repetition. Like Graham and Marvin, he also points towards the fact that people become subjects to systems of intrusive regulation and places are increasingly - like the airport - systems of monitoring, surveillance and regulation which are used to control the people on the move (Urry 2007: 15).

However, we would also like to add to such perspectives that new infrastructures and technologies not only materially support mobilities, as well as they create new patterns of exclusions and enable repetition of mobilities. They also shape and are shaped by various types of production of meaning. Here there are particularly two different perspectives, which we want to point out. Firstly, the new infrastructures and technologies deliver 'logic of actions' (Lassen 2006). As we have shown elsewhere, various infrastructures and technologies of the city, attached to various forms of mobilities, can be understood through the notion of 'corridors':

> '[...] The corridors have similarities with what Castells (1996) terms „space of flows" and Kvaløy (1973) terms „systems of channels" as ways of organizing contemporary social practices...When the employees [people] travel they contribute to the construction of corridors though spatial practices, but their own cognitive experience and logic of action are also influenced by movement through the corridors. Thus, the reference here is of a spatial organisation, where the corridors function as a selection mechanism, which picks and chooses so that the traveller is distributed in accordance with the logic of the corridor – logic anchored in „space of flows". The corridors deliver, like the space of flows, both a logic of action and a material spatial origination of social practice (Castells 1996: 406).'
> (Lassen 2009: 179)

The corridors (which resemble the notion of 'armature' in Jensen 2009a) consists of infrastructures, technologies, transport and communication systems, places, social practices and interactions that together set the scene for movement in and in-between urban areas and regions. In such corridors, infrastructures and technologies not only materially support various types of physical and virtual mobilities, they also contribute to the creation of a specific logic of action for people on the move. In many cases the logic is deeply rooted in the logic of the 'space of flow' where speed and non- historical places seem to take precedence over slowness and historical places (Augé 1995; Castells 1997). It is therefore important to emphasize that corridors, materially stretched out by infrastructures and technologies, also potentially affects people's actions as well as people shape the corridors through their actions. Particularly, this means that mobility research also needs to involve an understanding of the complex relations that exist between movement, infrastructures, technologies, objects, subjects, social practices and patterns of meaning within the contemporary city (se also Kingsley & Urry 2009; Urry 2007). Secondly, we will therefore also in relation to this perspective argue that infrastructure and technologies also contribute to create new arenas for production and consumption of identities and meaning:

> *'The presences of GPS, mediated surfaces, mobile agents (robots), RFID and other technologies that all relate to contemporary mobility practices add a different dimension to the notion of movement and constitutes new arenas and tools for identity construction and social interaction (as well as of course commercial exploitation and state control).'* (Jensen 2008b: 280)

Coming out of this perspective one could say, that infrastructures should be seen both as 'material artefacts' as well as they are 'cultural artefacts' (Jensen forthcoming). As shown previously, people living in the city use not only locations and places, but also the movement between these places and locations in their work of identity construction (Lassen & Jensen 2004). The question of identity is here seen as 'increasingly fragmented and fractured; never singular but multiple across different, often intersecting and antagonistic, discourses, practices and positions' (Hall 1996: 4). In a city and a region based on various forms of mobilities such discourses, practices and positions are connected in a complex way with the new infrastructures and technologies and the patterns of meaning attached to such systems. Therefore, the relation between infrastructures and technologies and various forms of meaning production is an important element to involve and explore in mobility research. However, as we will show in the following this production of meaning is also intimately related to the questions of planning/policy and everyday life. We will return to these questions in the following.

Policies and planning strategies for urban mobility

The 'hardware' of urban mobilities systems must also be understood in relationship to social, economic and political interests either facilitating or blocking the development of complex systems of circulation. Here we will point at two issues mainly. Firstly we see the relationship between plans and visions for urban mobility and power. Needless to say this has to do with the decision making capabilities as for example the way large scale infrastructure projects tap into public money (Flyvbjerg, Bruzelius & Rothengatter 2003; Jensen & Richardson 2004). But also the more small-scale development of infrastructures link in with power-laden issues such as property prices and market values (Jensen 2007; Trip 2007). Furthermore, we wish to point to yet another dimension of the relationship between planning/politics and mobility. Accordingly the drafting up of visions and plans for mobility seems to produce certain imaginary mobile citizens that are understood to perform in particular ways (Jensen & Richardson 2007; Richardson & Jensen 2008). Thus there is a need for understanding that planning and policy-making leans on a projected imaginary mobile citizen:

> *'What we are exploring within these complex nexuses of physical infrastructures and technology, cultural norms and legal regulations, design codes and architecture, social practices and interaction are in fact the creation of what might be termed „mobile subject types". By this is meant the production of relatively clear and well defined categories of imagined mobile citizens in the socio-technical nexus of infrastructure systems.'* (Richardson & Jensen 2008: 218)

Seen this way urban and regional infrastructure plans are not only contributing to changing the physical and material face of the city and region. They also produce certain types of citizens with certain needs and requirements for the particular visions created. In other words, a particular design and plan is the solution to needs of imaginary mobile subjects:

'From a mobilities perspective, we see plans reflecting ideas about how certain citizens are imagined to dream and manage their future lives. In other words, mobility systems are designed for certain imagined types of citizens, and urban and regional maps are drawn to fit with the planners' and policy-makers' imaginaries of how these particular types of citizens will want to move in time and space. This means firstly, that in plans, policies and designs there might be several types of mobile subjects present, each with corresponding imagined mobilities. Secondly, it means that the governing technologies and the domains of knowledge embedded in the logic of governing may work strategically to shape these ideas of mobile subject types. Thirdly, it means that in the actual construction of infrastructures and design of urban and regional spaces, these mobile subjects and their anticipated mobilities are present, legitimising new infrastructure types such as urban transit systems, and setting the conditions of possibility for the everyday lives of citizens. Future mobile subject types are imagined and narrated across the complex intertextual fields that lead to the production of mobility systems. Their imagined mobilities are predicated upon, and are used to make thinkable and normal, new technologies of mobility.' (Richardson & Jensen 2008: 220-221)

But there is more to the relationship between politics and urban infrastructure. The issue is therefore not only if a particular design, policy or plan is desirable or not. Rarely things are only good or bad. What we are facing is the ambivalence of mobility begging us to see the actual projects through not only 'problem' but also 'potentiality glasses' (Jensen 2009c). Mobilities are a social stratifying phenomenon for sure (Bauman 1999; Graham & Marvin 2001), but they might also bring unforeseen potentials such as new ways of interacting and building social relations, or by creating new business opportunities and commercial potential.

The second issue, which we want to consider here, is environment/sustainability. Especial the increasing hypermobility (Gössling & Peeters 2007) seems to raise a number of serious climate problems as well as other forms of environmental problems (Gilbert & Perl 2010). Hypermobility is characterized by promises of cheap high-speed travel and the inclusion of new social groups in air transportation, including the mass movement of long-distance tourists (Gössling & Peeters 2007: 403; Kasarda & Lindsay 2011). In relation to such perspective, we want to point towards another research area that takes place at C-MUS, namely aeromobility research. The starting point of this type of research is that today air travel is a fundamental element in the process of economic and cultural globalization (Graham 1995); and globally there are 1.9 billion air journeys each year (Urry 2007: 150). Therefore aeromobility research particularly explores the increased air travel, and how this development, in many complex ways, is connected to social, economic, and spatial transformations in the western cities and regions, as well as it is related to a number of consequences. However, the increase in air travel is also connected to much more aggressive impact of CO_2 emissions in the higher strata of the atmosphere, and therefore the threat to the global climate from airplane emissions is more serious than the threat from emissions of vehicles, which travel at the same distances at surface level (Engau et. al. 2008). A study from C-MUS shows that there exists a very complex relationship between transformation of urban spaces, increased air travel and environmental impacts. In a double case study of Billund (Denmark) and Nyköping (Sweden), we investigated how aeromobility is used as a core element in the development of new urban strategies of experience and transformation of urban spaces, especially focusing on the relationship between experiences spaces and aeromobilities in cities (Lassen et. al. 2009). The study shows:

'[...] Billund and Nyköping are not just picturing a simple form of causality, where increasing access to air travel creates a new experience destination; the two examples also illustrate the complex impact of the increasing prevalence of air travel on spatial, social and economic development of the cities, and at the same time, how spatial, social and economic reorganization contributes to the prevalence of air traffic, airports and air spaces. As such, the article also discusses how new forms of hypermobility (Adams, 2005), which are connected with transformed spaces for leisure and play, are a big challenge to politicians and planners on various levels from the local to the global in terms of environmental and climate change problems.' (Lassen et. al. 2009: 888)

This example illustrates, as Whiteelegg has formulated it, how 'the drive to consume large distance, as part of the search for experience, reaches its apogee in global tourism and air travel' (Withelegg 1997). Today, the rapidly expanding air traffic worldwide contributes about 3% of the production of CO2 to the global climate (Engau et. al. 2008). One other important consequence of this increase in air transport is that tourism now accounts for more than 60% of air travel and is therefore responsible for an important share of air emissions (www.uneptie.org). This shows how a mobility research approach also needs to involve the environmental consequences, which are related to the increasing hypermobility and the new forms of urban and regional strategies. Furthermore, the theme of aeromobility illustrate a very important point concerning the mobility turn, and that is the need for bridging multiple scales connecting the international air systems to particular local, urban and regional transformation processes.

The lived everyday life in the city and the region

The last perspective that we will deal with is the question of everyday life as a way to understand the mobility challenges (see also Jacobsen 2008). In particular we would put emphasis on seeing the everyday life and the 'ordinary' practices of moving about as significant cultural practices shaping an intimate nexus between the material systems of the city and the region, and the meanings and social norms created within such an arena (Jensen 2009b). In other words:

'As mobilities are understood beyond the instrumental we may also start asking about the sites that hosts mobile practices. If transit spaces and vehicles reach beyond simple travel and costs of overcoming "friction of distance", then issues of what types of cultural practices and social interaction take place in these spaces become of relevance. This, furthermore, raises the issues of thinking politically about infrastructures and mobilities. The term "political" is used here in the sense that we may start to explore whether infrastructures have underused potentials for working as public domains and spheres of interaction between socially and culturally diverse groups. "Armatures" (i.e. the mobility channels, Shane 2005) could therefore be thought of as intrinsic political, and the interventions into these or designs of them may be acts of "politicizing the armature" ... Thus, everyday life mobility produces identification and meanings beyond the state-led mobility politics. In relation to the perception of mobilities as culture comes an understanding of travelling as more than an instrumental act of physical displacement or shear waste of time.' (Jensen 2009b: xvi)

As examples of this line of thinking studies into the mundane and ordinary everyday life and its relationship to mobility and transit systems has been carried out applying Goffman's situationist perspective on mobilities (Jensen 2010b). Also the mobility practices within the subway systems of London, Paris and Copenhagen has been studied applying an mobile ethnographic approach (Jensen 2008a), and the sky train in Bangkok is yet another case study connecting the micro-practices of everyday life mobility to the task of redefining theoretical concepts within the mobility

turn (Jensen 2006; 2007) . Furthermore, this research point at case-based ethnographic fieldwork as an important on-going feature of mobility research (Jensen 2010a; 2011). Such perspectives also suggest that the relationship between identities and material sites must be understood as mediated and influenced by the ability to move or not:

> *'[...] we have come to see that our lives are not just what happen in static enclaves, but also in all the intermediaries and circulation in-between places. There is an intricate link between identification processes and the way we engage with the physical environment. Needless to say, multiple layers of identity production may have no spatial component. However, the way we bodily engage with places through multiple ways of circulating in, out of and across them shape an important part of the practical engagement with the world that ultimately construct our understandings of self and other. Valorisation of the socio-spatial relation depends on the bodily experience of mediated practices in time-space. Identities do not solely reside in place (be that home, neighbourhood, or nation) but rather places are coded and de-coded in a complex valorisation process where the networked connections to multiple communities of interests and practice offer new layers of relational connectivity. However identities, fluid as they may be, both in relation to individuals subjectivities and collectives are constructions made up by material and immaterial „requisites" of more or less durable sorts. These requisites work as identity markers that continuingly are being re-produced and re-negotiated. As we are linked-in-motion and thus not just passively being shuffled across town such „being-on-the-move" is an important contemporary everyday life condition in the city and should as such be re-interpreted.'* (Jensen 2009a: 154-155)

Other research has delved upon the significance of understanding the mobilities of the everyday life (see e.g. Kellerman 2006; Thomsen, Nielsen & Gudmonsson eds. 2005). However, here our aim has been to present some of the research perspectives and research carried out within the C-MUS centre. In the last section we will outline some future challenges and perspectives in relation to this on-going research.

Future research challenges and perspectives

Within the confinements of this article we have aimed to present just a few of the perspectives coming out of the mobilities research within the C-MUS research centre. Obviously, many other types of research take place within this centre as it bridges the faculties of engineering, social science and the humanities. Here our main aim has been to give a first presentation to some of this research as well as to present the contours of a theoretical framing of the analysis of urban mobilities.

In relation to the theme of infrastructures and the hardware/software we will in particular put emphasis on the need for understanding the complex socio-technical systems and nexuses of networks and nodes. We have in the research presented in this article focused on the channels, corridors or armatures within which mobility takes place in a dialectical process of producing and reproducing actual mobility or potential mobility (motility) (Kaufmann 2002). The materiality of networks and their physical connectivity (or disconnections) are vital first steps to an analysis of contemporary urban and regional mobility. But in societies where deliberation processes and decision making related to infrastructure systems are under pressure as well as wedded to various kinds of public accountability an analysis should take political and planning perspectives into account. Obviously wherever there are important decisions with repercussions to economy, environment and society to be made there are contestation, power and dispute. So urban and

regional mobility is a contested field of social practices and needs to be understood as such. Reaching from ambitions to control and govern flows towards the debates about social inequality and environmental footprints of particular plans and designs, 'the political' becomes a pivotal element in an analysis of urban mobility. However, the infrastructures and the political environment governing these are only capturing a part of the challenges. An analysis claiming to have understood the meaning of urban and regional mobilities must seek an understanding of the meaning to everyday life and the 'ordinary' lives of moving people. The actual lived mobility of millions of people engaging with mobility in all its challenging facets is a keystone to understanding urban and regional mobility. Our claim here is furthermore, that the everyday life mobility practices are more than issues of accessibility, suffering of 'externalities' (however bad we recognize them to be) or social stratification. Moving in the city and the region is also a profound way of engaging with the material and build environment that have impacts on the way we see ourselves and our consociates. Understanding the 'meaning of movement' to the urban and regional populations reaches deep into notions of self and other, identity and culture.

From this short article we have tried partly to open a window into some of the research taking place at the C-MUS centre. But more importantly, we have opened up the discussion and agenda for discussing what makes sense to include if one wants to investigate and comprehend contemporary mobility. In this article our main argument has been that an analytical framework of mobility research should include the complex interplay between the physical infrastructures, the political processes governing these and then the actual lived mobile everyday life of the contemporary urban dweller. In the future our own work will be dedicated to the exploration and deeper understanding and these perspectives in further theoretical and empirical studies within the framework of C-MUS. The point of the short exploration, which we have made in this article, is that future mobilities research should include these critical components to meet the *Mobility challenges*.

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