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Aalborg, d. 24. september 2014   *Eskild Holm Nielsen, dekan"*

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[1] All the forthcoming reference in this document refers to the two bibliographies in the books Staging Mobilities and Designing Mobilities.

1. Introduction – Summary in Danish and English

Resume på dansk

Indenfor de seneste år har væsentlige dele af byforskningen taget en "mobilitets vending". Der er tale om en stigende grad af bevidsthed om, at mobilitet ikke blot er noget "der sker". Mobilitet er udtryk for en grundig, detaljeret, designet og planlagt iscenesættelse (fra oven). Omvendt, er mobilitet også handlinger, der udspilles og performes i hverdagens praksisser når mennesker iscenesætter "sig selv" i mobile situationer (fra neden). "Mobilitetens Iscenesættelse" (*Staging Mobilities*) er udtryk for en dynamisk proces mellem at "blive sat i scene fra oven" (eksempelvis når man stoppes via trafikregulering) og at "sætte sig selv i scene fra neden" (eksempelvis når individer "forhandler" en passage på fortovet). "Mobilitetens Iscenesættelse" handler dermed om, at der er meget mere i mobilitet end bevægelse "fra A til B". Teorien udforsker hvordan bevægelser af mennesker, varer, information og tegn influerer på menneskers opfattelse af Selvet, sociale andre samt det byggede miljø. Afhandlingen skaber en ny forståelse for forholdet mellem bevægelse, interaktion og det fysiske miljø, og stiller overordnet spørgsmålet: *Hvilke betydninger har de fysiske, sociale, teknologiske og kulturelle iscenesættelser for den nutidige urbane mobilitet?* Den teoretiske ramme formuleret i bogen "Staging Mobilities" (vol. I) anvendes i fire dybde cases som beskrives i "Designing Mobilities" (vol. II). Denne empiriske del udforsker hvordan steder, lokaliteter og systemer er scene for disse mangfoldige og komplekse mobilitetsformer og hvordan designbeslutninger og interventioner sætter denne ramme. Ved at analysere forskellige eksempler på "mobilitetsdesign" relateret til de fire bevægelsesformer *gang, cykel, tog og bil* udforskes vigtige og indtil nu oversete forhold af stor samfundsmæssig betydning. Afhandlingen sammenbringer gennem den teoretiske optik og det empiriske arbejde de fysiske og tekniske rammer for det mobile hverdagsliv således, at ny viden skabes om det der kan tage sig ud som trivielle hverdagshandlinger. På teorisiden oplistes et nyt og omfattende teoretisk begrebsapparat, og på empirisiden dokumenteres dels relevansen af dette, dels illustreres i konkrete cases hvordan mobilitet er meget mere end "A til B". Det forskningsmæssige bidrag kulminerer i identifikationen af et nyt og ubeskrevet forskningsfelt herefter betegnet

"mobilitetsdesign". Et område som forfatteren i de kommende år skal udforske uddybende og eksplorativt gennem et stykke grundforskningsarbejde, og fundamentet herfor er skabt med afhandlingen *Staging Mobilities/Designing Mobilities*. Afhandlingens teorihorisont afspejler den teoretiske "mobilitets vending" gennem at være tværdisciplinær og der trækkes bl.a. på teknologianalyse, byplanlægning, sociologi, antropologi og by- og transportgeografi. Men som noget unikt nyt kobles også til indsigter og teorier indenfor arkitektur og design. Afhandlingen skaber dermed en ny forbindelse mellem videnskabelige discipliner af fortrinsvis analytisk karakter (teknologianalyse, geografi, sociologi) og discipliner af mere interventionistisk karakter (arkitektur, urban design, interaktions design, industriel design). Mødestedet for dette teoretisk begrundende og empirisk underbyggede felt er "mobilitetsdesign". Afhandlingen er publiceret i to bøger: Jensen, O. B. (2013) *Staging Mobilities*, London: Routledge and Jensen, O. B. (2014) *Designing Mobilities*, Aalborg: Aalborg University Press. Bøgerne er skrevet med mangfoldige krydsreferencer og er hinandens forudsætninger, såvel teoretisk som empirisk. Afhandlingen er baseret på mere end ti års forskning indenfor den såkaldte "mobilitetsvending" hvortil forfatteren er en internationalt anerkendt bidragyder.

Summary in English

In recent years, urban research has taken a 'mobilities turn'. There has been a developing realisation that mobilities do not 'just happen.' Mobilities are carefully and meticulously designed, planned and staged (from above). However, they are equally importantly acted out, performed and lived as people are 'staging themselves' (from below). *Staging mobilities* is a dynamic process between 'being staged' (for example, being stopped at traffic lights) and the 'mobile staging' of interacting individuals (negotiating a passage on the pavement). *Staging mobilities* is about the fact that mobility is more than movement between point A and B. It explores how the movement of people, goods, information, and signs influences human understandings of self, other and the built environment. Moving towards a new understanding of the relationship between movement, interaction and environments, the project asks: *what are the physical, social, technical, and cultural conditions to the staging of contemporary urban mobilities?* The theoretical framing in the *Staging mobilities* book is applied to four in-depth cases in the accompanying volume *Designing mobilities*. This book explore how places, sites, and systems 'hosting' these multiple and complex mobilities are designed and how they are staging these in terms of their physical layout. By analysing specific cases of 'mobilities design' related to the four modes of moving; *Walk, Bike, Train, and Car*, the book uncover important and until now neglected areas of social and cultural importance. Taken together the two volumes form a dissertation that both makes a theoretical and empirical contribution to the 'mobilities turn', as well as an innovative approach to bridging design research and mobilities research by articulating a new research field of 'mobilities design'. The dissertation is published in two volumes: Jensen, O. B. (2013) *Staging Mobilities*, London: Routledge and Jensen, O. B. (2014) *Designing Mobilities*, Aalborg: Aalborg University Press.

2. Staging Mobilities

Mobilities do not 'just happen' or simply 'take place'. According to the *Staging Mobilities* framework we should think of mobilities as carefully and meticulously designed and planned 'from above' as one might say. However, they are equally importantly acted out, performed and lived 'from below'. Mobilities are staged and people performing mobilities are engaged in social interactions of staging mobilites. *Staging Mobilities* is therefore a process of creating lived mobility practices and the material preconditions to these. In this research contemporary urbanism is understood as highly influenced by the staged mobilities of planning, design, architecture, governance systems, technological networks as well as by the social interactions, cultural meanings and the production of social order. *Staging Mobilities* is a socio-spatio-temporal process designing mobile lifescapes 'from above' and performed mobile engagements and interactions 'from below'. Until now the mobilities literature has not sufficiently grasped the dynamic and complex interactions of people in motion mediated by material sites and networked technologies. *Staging Mobilities* therefore brings a new perspective to mobilities research by documenting how the urban situation at the brink of the 21st Century must be understood from a perspective seeing 'staging' as a dominant feature of mobilities. The foregrounding of mobilities does not mean that everything is in flux, that there is no social stability or that 'everything solid melts into air' to borrow a phrase from Marx. Rather it means that places, sites, buildings, terminals, cities, and regions must be understood in their complex relationship to the fluid and fixed, flow and stasis, friction and movement. *Staging Mobilities* moves beyond the dichotomy of sedentary and nomad ontologies and epistemologies and points at dynamic lived mobilities as they manifest themselves in relation to three key themes; the physical settings, material spaces and design; the social interactions; and the embodied performances (see figure 1).

Figure 1: The *Staging Mobilities* model (Jensen 2013:6)

The perspective of seeing 'staging' and 'the staged' as the key metaphors for framing mobilities is inspired by the works of the Canadian sociologist Erving Goffman. Goffman was the student of the 'ordinary' and the everyday social order par excellence. In earlier works I have developed an emerging understanding of the fruitfulness of Goffman to mobilities research (e.g. Jensen 2006, 2010a). However, with this work a more fully developed analytical framework is constructed that takes key insights from Goffman's perspective of role play and 'dramaturgic' analysis of social interactions. One of the most well-known concepts of Goffman's might serve to briefly illustrate this point. In Goffman's notion of 'front stage/back stage' many urban scholars have seen the distinction between public and private spaces (e.g. Madanipour 2003). In the light of *Staging Mobilities* however, I want to bring this concept into a much more dynamic and complex framing. What takes place accordingly is a 'mobile front staging / back staging' process within which mobile subjects undertake performative work in a process of negotiating 'staged' demarcations of front- and backstage as well as they are 'staging' their own mobile lines of demarcation. For example when we appropriate space in the train compartment by means of mobile objects (newspapers, books, mobile phones etc.) or whatever takes place within the car as a mobile domestic site (backstage) yet often utterly publicly transparent (front

stage). By applying the front/back stage metaphor to the *Staging Mobilities* frame we see a process of 'mobile territorialisation' illustrating the dynamic character of contemporary urban life. The key idea behind the *Staging Mobilites* perspective is thus to capture the fact that mobilities are being staged, as well as the social interaction taking place must be understood in the light of a 'staging' process.

The research questions

The rationale for this book is to address the following overall research question: *What are the physical, social, technical, and cultural conditions to the staging of contemporary urban mobilities?* This overall question hosts a number of sub-questions that the book explores both theoretically and empirically en route:

1. What are the implications of the physical form and material design of sites and spaces hosting mobilities to the sociality of contemporary urban life?

2. How are social interactions and their dynamic interrelations produced by and re-producing mobilities and cultures of contemporary urban life?

3. How does it feel to be a social agent on the move within the contemporary network city, and what normative and social ties are created between social agents, places and objects in the network?

4. How are mobilities being shaped and given meaning by semiotic systems of communication, circulation, and mobilities processing?

5. How are networked technologies facilitating and underpinning mobilities of contemporary urban life?

6. How are infrastructures of the network city creating new cultural practices and ways of using the city, and how are they creating mechanisms of social exclusion and power?

The work is anchored in a cross-disciplinary institutional context of an urban design research environment hosted within an architecture, design and media technology department. This

means that a number of the discussions and examples are drawn from the urban design field and thus carry the particular sensitivity to the way things appear and configure in a physical and material sense. Being informed by phenomenological and interpretative thinking this work, however, also insists on a materialist and relational perspective on both social interactions and their environments. Furthermore, the situational and concrete focus of the body in real life situations of this work points towards pragmatism as another intellectual heritage. Attempting to be anti-dualistic and not naively 'representational' of the phenomena studied this work seek a constant focus on the relations and distinctions between areas of concern. *Staging Mobilities* work on the contextual, situational, embodied practices of contemporary mobilities and has therefore an underpinning of various streams of thought as its basis. The perspective on contemporary mobility studies is therefore at one and the same time multi-disciplinary and focused on a situational and material form of sociology.

The content and organization of the book

The book is organized in four main parts. The first contain review of the field and positioning of this work. The second part is the theoretical framing specific to the *Staging Mobilities* framework. In the third part cases and empirical examples of material practices are explored. In the fourth and final part the more general discussion pointing towards a sociology of *Staging Mobilities* is on the agenda.

Part I is termed 'Staging Mobilities – Review and Positioning'. Chapter one presents the overall research question and the issues of the book. In chapter two I move towards a more thorough discussion of the 'mobilities turn' and its repercussions for understanding the contemporary city. Part I is the foundation and positioning of the work in relation to the 'mobilities turn' as well as engaging with the critical reception hereof.

Part II is titled 'Framing Mobilities'. In this part three chapters present the core ideas behind the *Staging Mobilities* perspective. This part of the book mirrors the three themes of the *Staging Mobilities* model (figure 1) and aims to frame situational mobilities. In chapter three the theme of the physical settings, material spaces and design will be explored and articulated. In particular I put emphasis on issues less explored within the mobilities literature such as the

more architectural and design oriented insights into the material organisation of mobilities. Also key issues such as how the mobilities perspective is affecting the understanding of place will be addressed here. In chapter four I present the framing for understanding the social interactions amongst mobile consociates. The chapter presents thoughts and ideas reaching back to Georg Simmel but will in particular put focus on the theories of Goffman. The part is ended with chapter five on mobile embodied performances. The sensing and moving human body is the pivotal theme of that chapter and the 'way it moves' in quite some detail.

Part III has the focus of 'Practices and materialities of mobilities'. This part opens up with chapter six on networked technologies and discusses the mobile practices afforded by new digital media and technologies. Chapter six explores the way that these new technologies afford new types of mobile interaction and at times become embraced as cultural artefacts that resemble 'second nature'. In chapter seven I move on to explore a mobile ethnographic account of 'negotiation in motion' based on a detailed urban field study. Chapter eight throws light at the altogether different theme of urban subways and metros as sites for mobile interaction. In the chapter I discuss how urban metro systems mediate lived mobilities in the contemporary city.

Part IV has the title of a 'Sociology of Staging Mobilities'. In chapter nine the issue of the material and physical design dimension to mobilities is re-addressed. This time, however, with more direct discussions of the potential for adding this as a much more elaborate dimension to the mobilities research agenda. Chapter ten is the concluding chapter and I return to the outset question of what it takes to stage mobilities as part of the contemporary urban experience. Moreover, I end the chapter and the book by offering 'ten pointers' for the future of mobilities research.

3. Designing Mobilities

Designing Mobilities is a book that explores how places, sites, and systems 'hosting' multiple and complex mobilities are designed and how they stage these in terms of their physical layout. By analysing specific cases of 'mobilities design' related to the four modes of moving -- *Walk, Bike, Train,* and *Car* -- the book uncovers important and heretofore neglected areas of social and cultural importance. The book is the empirical and case-based companion to the book *Staging Mobilities* (Jensen 2013a).

The book *Designing Mobilities* investigate how the staging of mobilities by means of very specific design solutions and choices not only affects contemporary urban life, but actually shapes cultures and social interaction. Mobility is culture, and the design of the frame conditions for mobilities therefore becomes about much more than rational organisation of traffic flows. *Designing Mobilities* fills a gap in which much other research either is very theoretical or very design oriented, but where the connection between mobilities theory and design literally is non-existent. (Exceptions are Merriman's 2007 study of motorways and Adey's 2010 work in airports.) Due to the complexity of the matter as well as resource restriction, I have chosen to explore Danish cases only in the empirical section. However, I have compiled an appendix on global reference projects to put things into perspective by illustrating how the analytical model may be applied beyond Danish cases. Moreover, the analytical points and details found in the Danish cases are not valid only for or restricted to this study. Needless to say, the cases chosen have generic and global properties which afford inference of results from the Danish cases to other global examples of mobilities design. The visual illustrations in terms of images, photos, and diagrams are furthermore a distinctive feature partly to utilise such techniques for communicating the message of the book, partly to engage with a key design element: graphic representations and diagrams as a method of reflection and analysis.

The research questions

The research question and the sub-questions underpinning this book are the following. In general terms the book is concerned with the overall question; *How is design affording and/or*

preventing particular mobile practices in everyday life? As subthemes to this very general question I shall explore the following in greater detail:

I. How is the design of various modes of mobilities and sites affecting the mobile situations of everyday life?

II. How are mobilities represented and 'captured' in analytical and methodological terms?

III. How does the design of mobility modes and sites of mobilities influence the social and cultural interactions and exchanges of the contemporary city?

IV. How does the design of mobility modes and sites of mobilities enact and engage with the human-embodied performances in the mobile situations of everyday life?

V. How can we, on the basis of the investigations and explorations carried out in this book, start to articulate a field of 'mobilities design' and which theoretical, methodological, and disciplinary inputs may be needed?

The content and organization of the book

The book is organized into four parts and eight chapters. Part one contains the introduction and research questions and part two focuses on representing mobilities. Part three is the empirical analysis of cases and part four contains the conclusion and perspectives.

In part one I present the key issues and the theoretical framework for analysing these issues. The theoretical perspective on how to 'read' the cases is presented so that the reader will be familiar with this line of thinking from the outset. In the first chapter, the link between mobilities theory and design is presented as a key nexus of the book. The growing field of mobilities research is described briefly, and the key rationale behind the book is presented together with the key questions driving this research. The chapter focuses on the *Staging Mobilities* framework and how this can become operational in relation to analysing specific cases of mobilities design. The chapter goes through the three analytical areas of the model: material spaces and design; social interactions; and the embodied performances in order to present how these areas and themes may be explored in cases of mobilities design.

In part two, I look at how mobilities are being represented and 'captured'. Chapter two focuses on various mapping approaches, methods, and technologies in order to comprehend how mobilities design may be understood and represented in research and design efforts. The chapter gives a short overview of a wide array of mobility mapping approaches and methods, some of these being both qualitative and quantitative (e.g., GPS, Songlines, Mental Maps, Serial Vision, RFID, Bluetooth, Video Surveillance, heat sensitive video, computer vision, and Social Signal Processing). Secondly, the chapter's focus is on ideas of representing mobilities and flows in a visual and graphic format. From early visual representations of movement studies of humans and animals to the diagrammatic vocabulary of architects and urban designers, the chapter explores how motion is 'captured' in two-dimensional graphic representations. In the third chapter the notion of 'mobilities design' is presented as a particular emergent research field. On the basis of the analytical and theoretical *Staging Mobilities* framework (Jensen 2013a), this chapter works toward an operational discussion of key concepts and levels of the framework. My own mobilities diagrams are also presented in this chapter. The chapter connects key concepts from the *Staging Mobilities* framework to visual diagrams in order to facilitate the development of an operational framework that will be applied to the analysis of the cases in part three.

Part three of the book contains four detailed case studies all explored using the analytical framework. The case studies cover four modes of mobility: *Walk, Bike, Train,* and *Car.* Chapter four explores the notion of the 'Extra Large' building upholding urban characteristics and features due to its scale and mediating function as transit space in an urban context. The case is the urban shopping mall 'Friis' in the centre of Aalborg, Denmark. Friis is a node of horizontal and vertical mobility of goods and customers. The people frequenting Friis come mostly by private car or on foot. A key feature of Friis is its linking function between areas of the city, making it host both to people in transit as well as shoppers. The chapter mainly explores the pedestrian flows within and through the building complex. Chapter five explores how cycling as a mobility mode is being designed very differently in three Danish cities. The relationship between the moving body, the cycle as an artefact and material vehicle, and the wider system of cycle paths and traffic information systems make up complex socio-technical assemblages

that are designed carefully and with the clear agenda of trying to shift car users to bikes in inner cities. The empirical data is from the 'Bikeability' research project on which I worked, and the material used in this chapter is some of the unused and less frequently published material from this project (Andrade et al. 2011, 2012a, 2012b). In chapter six, the busiest train and metro station in Copenhagen, Nørreport Station, is the case used to illustrate how 'metroscapes' are designing, hosting, and orchestrating mobilities. By exploring in detail how the Metro Company has approached the aim of almost 'pure circulation' with no public activities and programs, the case of Nørreport Station is used to show the staging and designing of mobilities within complex assemblages of socio-technical infrastructure systems creating habitats of mobilities in urban everyday life. In chapter seven the interurban freeway that shapes and affords a very large part of the contemporary urban development on a global scale is explored. The key themes are to understand the (interurban) motorway as a space on its own, governed by both formal regulations as well as 'cultures on the move' and the 'grammar of the motorway'. (I want to acknowledge the borrowing of this term from Urban Designer Peter Frost Møller.) The case explored is the motorway stretch from Vejle to Aarhus, Denmark, also dubbed 'the 100 km City'. Chapter seven investigates how material conditions of the motorway design, such as off-ramps, gas stations, and the built environment alongside its path, together with the complex interactions in and between the mobile subjects occupying the 'motorway assemblage', are illustrative of 'mobilities design'.

Part four of the book collects the elements presented in the book and draws conclusions based on these findings as well as pointing forward to perspectives for mobilities research and identifying a new research field of 'mobilities design'. The concluding chapter will draw upon the analysis made so far to engage in a discussion about the education and curricula of the many different disciplines engaged with mobilities design. In the chapter it is argued that many more professions may be considered 'mobility designers' than actually appreciate this. Moreover, the chapter illustrates the cross-disciplinary advantages and potentials that accompany such new insight. The chapter returns to the overall research questions and lays out further implications of mobilities research. In particular, the empirical findings will be linked to the theoretical perspective of *Staging Mobilities*, aiming at contributing to mobilities research

by offering a new research perspective focusing on how spaces and sites of mobilities are laid out, designed, and materially constructed. The concluding chapter presents the double research strategy of *Staging Mobilities/Designing Mobilities* as illustrative of 'critical mobilities thinking'. The final chapter also points to future challenges for theoretical as well as empirical research, arguing for the establishment of a new field of enquiry. The chapter ends by stipulating how such a research area of 'mobilities design' may contribute to both theory and conceptual innovations, as well as to practical and material investigations of how designs shape, afford, and hinder various forms of future mobilities.

4. Key contributions to the research field

From the summaries of the two books I now turn to the key contributions of this research to the research field and academia. This section is structured in three dimensions: one concerned with the theoretical contribution from the 'Staging Mobilities' book. The second is related to the empirical findings and contributions from the 'Designing Mobilities' book. The third and final section cut across the two books and looks at the general contribution to the academic field of knowledge production by focusing on the identification and articulation of 'Mobilities Design' as a new and emerging research field.

I. Theoretical contribution from Staging Mobilities

The theoretical contribution from 'Staging Mobilities' contains two elements. One is the articulation and establishment of a theory of 'situational mobilities' which provides new insights in the lived, mundane and everyday life experiences of contemporary urban society. In particular the situational perspective (epitomized in the 'Staging Mobilities' diagram, fig. 1) developed here draws on a new set of literatures from architecture and urban design that never before (to my knowledge) has been connected this explicitly to the mobilities turn. Theoretically the book offers a new perspective on mobilities by linking the design-oriented bodies of knowledge with mobilities turn research. The second element is the creation of a set of concepts and words (a new lexicon) for articulating this situational perspective. A number of theoretical concepts were put forward in the 'Staging Mobilities' book and a select list hereof used empirically in the case analysis of 'Designing Mobilities'. The list of concepts that was used empirically is presented here along with short explanations of the concepts:

Critical mobilities thinking - Dark sides of mobilities/mobilities potential thinking

This concept is actually comprised of two dimensions since the hallmarks of 'critical mobilities thinking' are both to engage with the 'dark sides' of mobilities, such as social exclusion or failure and breakdown, and to explore mobilities potentials in seeing new opportunities for

socially enriching designs and experiences previously overlooked. Simply put, 'critical mobilities thinking' works with both problems and potentials.

Mobile sociopetals and mobile sociofugals

The notion of mobile sociopetals refers to how some sites and settings function particularly well in getting people to go there and unfold their activities. In a metaphorical sense the sites are attracting and 'drawing in' people and things where they are the epicentre of a magnetic field of gravity or a whirlpool. As the opposite of the sociopetal notion, the mobile sociofugals tend to 'push' away people, goods, etc. or distribute them from their centre of gravity.

Mobile body semiotics

The concept 'mobile semiotics' concerns how signs (in their broadest possible sense) afford, process, and coordinate (or obstruct) the physical circulation and movement of people, vehicles, and goods in more or less codified systems of infrastructure. Related to the notion of 'mobile semiotics', I speak of 'mobile geo-semiotics' as a way to think about material locations (hence the 'geo') of signs as well as the fact that signs are interpreted in motion. Semiotic systems modify and interact with the human body and sensations as the subject moves and thus afford particular motions, directions, speeds, modes, and routes. This leads me to speak of an increasing number of semiotic techniques, designs, media, symbols, and signs coming together in an emerging 'mobile semiotic grammar'. This may be likened to a semiotic vocabulary of a more or less generic nature as, for example, the well-known international standards of airport signage and wayfinding or traffic signs. Reading these requires a certain level of skill in applying the mobile semiotic grammar. Across all cases of mobilities research, the moving and perceiving body is crucial. However, what becomes even more interesting about the notion of a 'mobile body semiotics' is that human bodies do not only move and sense the material and semiotic environment. The body on its own also becomes a 'sign vehicle', communicating intentions and norms. Therefore, the codified regulatory principles governing the gestures of the mobile bodies as they move in traffic become an interesting and illustrative case of a 'mobile body semiotics'.

Mobile assemblages

The term 'mobile assemblages' captures how systems and socio-technical networks that 'host' contemporary mobilities are complex and how large material environments where technologies, humans, software, codes, semiotic and communicative systems, objects, and artefacts are assembled in specific combinations that facilitate and afford certain mobile practices and restrict or prevent others. The key issue is how systems and networks assemble humans and non-humans in an attempt to 'stage' mobilities.

Mobile with

Our movement in the city is a dynamic and socially complex affair that has more repercussions than 'just being traffic'. Humans make sense of their environment as they move and this is important to the way we engage with our consociates whether or not we know certain things. To describe this I coined the phrase 'mobile with' for the particular interaction dynamics that are created when a 'party of more than one' is on the move. The fact that groups move together affords particular social dynamics that are captured by the notion of the 'mobile with'.

The networked self

Using the notion of the 'networked self', I focus on how urban everyday life mobility is deeply embedded in all sorts of networks (from 'hard' infrastructure to 'soft' digital communication systems). Some of these are the 'channels in which we move', so to speak. Others are leisure-time communication and entertaining systems (e.g., commercials or digital gaming). The performative acts of networking as we move, coupled with the effects of network connectivity on mobilities, are at the centre of this concept. As it seems that more and more of the networking in digital systems becomes mobile, the mobile subject to a large extent is becoming what he or she is while being on the move. We are 'linked-in-motion' and carry networks in socio-technical systems, sorted by software leading to new interactive practices. The notion of being 'linked-in-motion' is thus the 'systemic' property and dimension related to the individual notion of the 'networked self' presented earlier. In the midst of the complexity of 'negotiation in motion', people tend to cluster and interact in very swift and volatile situations that

nevertheless offer a minimum of stability and are recognized as situations on the go or what I term 'temporary congregations'. Such meetings are ephemeral and may be the shared waiting for a bus, the sharing of a train compartment, an elevator ride, or other types of loose and temporal situational mobility. Often the staging by design has prepared for specific modes of interaction in such temporary situations where mobile subjects are known to congregate. The working of such protocols is due to the stretching of technologies taking place across time and space, thereby facilitating a new dimension to the 'proximity-connectivity nexus'. By this is meant a new dynamic relationship between physical copresence and mediated connections across time and space and how those connections affect the mobile situations. Connections and distances have been influencing each other for long time, but now networked technologies create a new and dynamic interface and mediation, or what I term a 'nexus'. The distinction refers to the difference between topography (proximity) and topology (connectivity). As a result, adjacent to the logic of closeness and proximity lies a new potential in distanced connectivity mediated by networked technologies. This affords new ways of engaging, for example, the 'friction of distance' as connections and communications may occur across time and space.

Mobility cultures

Each of the specific mobilities modes involves a set of practices and normative regulating principles that one needs to master for practical reasons. So there are 'walking-codes', 'cycling-codes', etc. Clearly, these are ways of acting that we could see as more or less explicitly articulated cultures. Such 'mobility cultures' are linked to official and legal sanctions and mobility regulations, and are installed and inscribed into material environments from above. However, they are also embedded in the body as tacit mobility cultures, and thus individual acts of self-staging from below. Some are more globally generic mobility codes, while others are locally anchored and, as such, are expressions of local norms and customs. The key insight is therefore that mobilities are signifying and meaning-producing performances that create culture as much as they are instrumental acts of physical displacement.

Mobility aesthetics

The realm of aesthetics becomes highly relevant as we engage the wider production of subjectivity and the meaning of movement to perception. We are looking at 'life in motion' and the body plays a pivotal role in creating the situational touch points for the creation of cultures and practices related to mobilities. The mobile body produces and reproduces a 'mobile aesthetics' that creates new subjectivities and new ways of perceiving the world. Moreover, the mobile experiences lend themselves to new ways of thinking about infrastructure spaces and mobility technologies as having aesthetic properties. So rather than morally condemning these 'non-places', the mobile experiences afford new aesthetic experiences and ways of relating to self and other. Experience in motion has to do with the way that new mobile embodied perceptions are creating systems, patterns, and models of moving and being moved. That is to say, embodied mobilities afford particular normative and social interactions that aggregate into cultural patterns of 'mobilities meaning'. Such embodied and collective 'cultures of mobilities' are at one and the same time very different for particular modes of mobility (cars afford different experiences than walking shoes) and identical since we interact with systems, technologies, and artefacts that have the same 'body interface' regardless if we are driving, sailing, or flying).The individual mobile subject thus experiences the world (or significant parts hereof) in motion.

Mobility affordances

The material sites and the technologies that our bodies negotiate in mobile practices may then be thought of as 'mobility affordances'. By this is meant how the specific relation between the moving body and its material environment opens up to particular modes of mobility, different speeds, trajectories, temporalities, etc. 'Mobility affordances' illustrate the very specific and material dimensions to mobile situations.

Mobilities divides

The staged mobile situations of everyday life relate to networked technologies of different sorts. In relation to such technologies, issues of 'mobilities divides' are socially stratifying practices that relate to mobility differentials that come about either as a function of economic resources, intellectual and knowledge capabilities, practical skills, geographical location, or

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cultural frames all contributing to the fact that some people know how, can, and will be mobile while this is out of range for others (or even fully constrained, as with immobile subjects in jails or nursing homes). 'Segregated mobilities practices' are the mobility patterns segregated along the lines of income and social hierarchy often wedded in a complex way to the infrastructure systems of the city with respect to both 'switched off areas' as well as to the more general urban social strata. The notion points toward an understanding of the staging of mobilities as an expression of mobile power-geometries. Segregated mobilities practice may also come about as a function of mobilities skills reaching from cognitive operations to bodily capacities.

The river

Seen from a 'birds-eye' perspective, an infrastructural flow space with its actual layout of curbs and urban furniture might be likened to a 'riverbed', shaping the flows of people as water in a 'river'. The 'river' is coined as a metaphor for seeing mobilities from the vantage point of a 'bird's eye' and will therefore intentionally homogenize the elements of the stream. In other words, the analysis may benefit from the abstract, aggregated, and homogeneous understanding of a collective stream of bodies, bikes, cars, or the like. However, grasping the embodied experiences of mobilities requires a shift to the 'ballet' metaphor.

The ballet

At eye level with the mobile subjects, I coined the notion of the 'ballet' because I find the gestures, gazes, and embodied negotiations and micro-interactions that take place ever so swiftly. The 'ballet' metaphor places in the foreground the bodily interactions and situational dynamics of situational mobilities. It puts the embodied and lived perceptions and sensations of the individual mobile subject at its centre. The mobile and situational interactions that take place in everyday life often come into existence swiftly, but dissolve just as quickly, in the blink of an eye. However, as mobile subjects share the same spaces and pass each other in often confined space and with high-speed interactions, exchanges of reciprocity become essential for the mobile order of the everyday life. This is covered by the notion of 'negotiation in motion'. The swift and almost ephemeral social interactions are equivalent to negotiations-in-motion.

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From this list of concepts a new analytical vocabulary emerges. This is a set of concepts and a 'language' that makes it possible to explore and engage with empirical cases of mobilities design in a richer way than what has been the case until now. Moreover, these concepts are operational and applicable to any analysis of 'mobilities in situ'.

In the theoretical volume 'Staging Mobilities' I end the book with '10 pointers for future mobilities research' that granted can be understood as provocative and manifesto-like. However, I do believe they frame key insights and main points arrived at in the theoretical work:

Ten pointers for future mobilities research

1. Mobilities must be thought of in plural

The phenomenon of mobilities is empirically diverse, and thus calls for theoretical and methodological diversity.

2. There is no singular discipline for understanding mobilities

As a consequence of the ontological and epistemological pluralism of mobilities there is no singular discipline with patent on how to make sense of contemporary mobilities.

3. Thinking mobilties does NOT turn everything into flows

Thinking mobilities is not a threat to classic social science issues of power, territory and identity that are left floating in abstract space. Rather thinking critically about mobilities means to foreground mobilities to better understand contemporary social dynamics.

4. Think relationally about place

Contemporary mobilities need to be framed within a notion of a relational geography seeing places as networked and relational entities within complex socio-technical assemblages.

5. Rehabilitate and Politicise the armature

Armatures may be 'rehabilitated' as sites that are more than a necessary evil in getting from point A to point B. Sites hosting mobilities are (potentially) meaningful spaces of social interaction and therefore also the potential new public agoras and sites of political voice.

6. Encourage Mobilities Potential Thinking

As part of 'critical mobilities thinking' the 'analytical' disciplines might benefit from not only identifying problems but also potentials. Actually this may be the hallmark of critical social analysis if it is at all to contribute to solving the grand challenges of climate change, demographic shifts and resource scarcity.

7. Understand the 'Dark Sides' of Mobilities

Next to the innovative dimension of potentials 'critical mobilities thinking' must also pay attention to the 'dark sides' of mobilities as they manifest themselves in issues of social exclusion, power, segregation, systems failure, crisis, breakdown and disruption

8. Explore 'Mobilities Design'

The analysis so far suggests that in order to get deeper into an understanding of the meaning of mobilities the 'mobilities turn' should start working on questions related to the material design of sites, spaces, and systems of mobilities. Exploring the materialities of mobilities means to establish a dedicated field of 'mobilities design'.

9. Mobile pragmatics

Mobilities research is theoretical and conceptual as well as empirical. But at the end of the day it will benefit from being understood in pragmatic terms. This means that mobilities research will profit from setting the question of 'what might the practical effects be?' at the centre of investigation.

10. It all comes together 'in situ'

From the explorations of the analysis in both theoretical and empirical terms it should now be clear that the situational focus of the *Staging Mobilities* framework carries a large potential for

future mobilities research. Mobilities are staged 'from above' by planning, regulation and design and 'from below' in social interaction. The most fruitful place to study this complexity is in the everyday practices and lived situations.

II. Empirical contribution from Designing Mobilities

The key empirical contribution from the Designing Mobilities book falls in four areas.

Firstly, the book develops case-based and site-specific knowledge about four modes of mobilities (walk, bike, train, and car) in the light of the situational perspective. This is in particular related to the specific sites of Friis in Aalborg, the Bike schemes in Copenhagen, Odense and Aarhus, Nørrport Station, and the Motorway stretch from Aarhus to Vejle. At this level the research contributes with site-specific knowledge.

Secondly, as the appendix titled 'Global references' suggests this method and approach is held to be equally valid for explorations of any other site of mobility and movement across the world. Hence, the empirical application of the 'Staging Mobilities' approach is proposed as a second, but still empirically untested, potential.

Thirdly, the empirical case analysis contributes to the field with a very explicit illustration of operationalization and methodology stemming from the situational approach to mobilities. Rather than proposing this approach in an abstract method terminology, the book contributes to the field by vividly illustrating how analysis and explorations may be done applying this approach.

Fourthly, the empirical analysis has policy and planning implications. After the submission of the books I was asked to write a contribution to the web site of the Danish Cyclist Union on what a situational approach might mean for policy and planning. There I argued that this case has much more general potential. The key point about suggesting a situational approach is to deal with one of the key problems in all urban planning and policy making, namely to get closer to the perceived and lived experiences of those humans who are subjects to plans and polices. The potential of the 'Staging Mobilities' perspective for policy and planning is thus to supplement with site-specific and concrete ethnographic accounts balancing the predominantly

abstract and quantitative knowledge-base of much contemporary urban and transport planning and policymaking.

III. The combined and general contribution from Staging Mobilities/Designing Mobilities

In summary I would argue that the combined and general contributions from the *Staging Mobilities/Designing Mobilities* dissertation are related to the articulation and identification of a new and emerging research field termed 'Mobilities Design'.

The lessons learned from Friis, the bikes paths of Aarhus, Copenhagen and Odense, Nørreport Station, and the '100 km city' speak to the fact that regardless of their mode and scale, explorations that engage with the materialities of mobilities are needed. I propose, therefore, 'mobilities design' as a new 'material turn' within the already established field of mobilities research. There is a need for research targeting the material, physical, and design-oriented dimensions of the multiple mobilities from the local to the global. Despite its cross-disciplinary identity, the 'mobilities turn' has not capitalized on the potential to explore issues of material design and physical form. The way I think of the 'material' in this context resonate with Ingold when he argues that we should move from talking about the 'materiality' of objects to the properties of 'materials' (Ingold 2011:26). It is precisely the qualitative, pragmatic, and situational properties of things and objects rather than some abstract notion of the material that should be our concern. I am thinking of 'stuff' and how it shapes situational mobilities. So I propose that we need a new mobilities analysis of the design and politics of 'stuff', as well as the embodied and interactional dynamics of mobile humans and 'stuff'.

Research into 'mobilities design' departs from the pragmatic question: *What makes mobile situations possible?* Therefore, research in 'mobilities design' explores the affordances created by material design in general, but also by other types of design decisions and interventions of a less material/physical form. Thus, design decisions and interventions within systems design and service design that create various user-interfaces may have to be included into the analysis of 'mobilities design'. A research strategy for mobilities design is focused on understanding how decisions and interventions within as such diverse fields as architecture, urban design, product design, planning, traffic engineering, software design, and interaction design enable particular

mobile practices while supressing others. A research program for 'mobilities design' must be based on the notion of 'critical mobilities thinking' with its double focus on problems and potentials. Thus the emerging research area of 'mobilities design' should explore how decisions and interventions affecting concrete and specific mobile situations may be related both to 'dark side' issues such as power, social exclusion, marginalisation, environmental degradation, risk, failure, vulnerability, and breakdown as well as to potentials for new experiences, inclusive social engagements, new business models and opportunities.

A future research agenda for 'mobilities design' embrace a number of issues coming out of the merging of 'critical mobilities thinking' and design, such as exploring how mobility systems of the future might become: more socially inclusive; less environmentally restraining; more resilient and risk adverse; more flexible and less vulnerable; more inspiring and attractive; and more open-minded and fun. I cannot claim to have a fixed agenda for focus areas, methods, and theories. This would not only supersede my own capacity as a scholar, but also be highly inappropriate for the invitation to think across areas of research and disciplines of thinking. However, as a start, I would point to the foci of studies targeting situated practices, material doings, social acts and interactions. Studies that engage with the intertwinement of objects, artefacts, systems, technologies, spaces, and the human/non-human relationship should be particularly promising, as would studies focusing on the sensed and embodied practices and kinetic 'being in the world'. In terms of methods I would welcome more experimental creative and performative approaches. Regardless of the theme of study I find the situated and empirical very important and will keep insisting on emphasizing the material dimension in a rather literal sense. As the field is potentially very wide, this listing of foci and methods is obviously only my own proposal for a continuation of this line of work. But my own interest point in the direction of exploring relationships between post-phenomenology, various strands of ''non-representational'' thinking, and pragmatism. In particular I believe the latter to be an underdeveloped perspective. Pragmatist thinking from Peirce, Dewey, and James (the classic American position) seems to have been overlooked as a relevant epistemological source of inspiration to social science studies within the 'mobilities turn'. From the exploration into the design world, however, I have come to the see that various elements of classic pragmatist

thinking may work as part of an underlying frame of reflection for the nexus of mobilities research and 'mobilities design'. This, however, is more of a hypothesis and something I will devote my energy to explore in the years to come.

In summary, the *Staging Mobilities/Designing Mobilities* dissertation adds significant new scientific insights by developing new approaches, concepts, and theories to the established field of mobilities research, and thereby bringing the mobilities research field significantly forward. In general terms the mobilities turn has long argued that mobilities is much 'more than movement from A to B'. The *Staging Mobilites/Designing Mobilities* dissertation is adding significantly new theoretical and empirical substance to this 'more than A to B' claim. Moreover, it directly cultivates and articulates the emergence of a new research field of very large potential, namely the field of 'Mobilities Design'.