Towards a sustainable mobility paradigm? An assessment of three policy measures

Fredrik Johansson

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Abstract

Transportation and mobility are important components in the organisation and structure of people´s daily activities, but the transport sector has considerable environmental impacts, e.g. greenhouse gas emissions and land use. Governance of the sector is difficult, as there is an ongoing a shift in governance structures away from hierarchical towards more collaborative governance. Given these challenges, it may be necessary to shift the focus from mobility to accessibility and to adopt a new paradigm in transport planning.

This thesis critically investigates what a paradigm shift might mean for the Swedish national and municipal transport, housing and parking planning context and examines what a Social Practice Theory framework could contribute in analysing such a paradigm shift. This is done by investigating three different policies that are arguably in line with a shift in planning paradigms.

All three policy measures open up decision making to different stakeholders or even citizens, reflecting a shift in governance, and all highlight the need to shift the focus from physical infrastructure to accessibility, through collaboration with a range of stakeholders. However, in each case, current conditions and practices render a transition more difficult.

The Swedish Transport Administration (STA) states the importance of reducing the need to travel and of using existing infrastructure more efficiently, and stipulates that these types of measures should be considered before new infrastructure investments. However, the STA has a limited mandate to finance these measures, resulting in ambiguous signals and frustration among regional STA officials. This thesis shows that making the STA's mandate more function-oriented would facilitate a transition in line with the sustainable mobility paradigm.

Another policy measure discussed in the thesis is a shift from minimum parking requirements, where developers are required to build a minimum number of parking spaces, to flexible parking requirements, where the number of parking spaces provided depends on the local context and where other mobility services may replace the need for physical parking spaces. In this thesis, people who have bought apartments in developments with flexible parking requirements were surveyed in order to understand their practices and how they perceive and plan to use the mobility services provided.

The feasibility of using a new parking management tool, Parking Benefit Districts, in a European context (Stockholm, Sweden) was assessed. In a Parking Benefit Districts system, parking charges are implemented, increased or extended to curb parking, with the revenues being returned to the area where the charges are imposed and with citizens, or other stakeholders, participating in decisions on how to use the revenues. The underlying intention is to increase acceptance of parking charges, as on-street parking charges may be deemed necessary by planners, but are unpopular among citizens and other stakeholders. This thesis shows that there are no legal barriers to implementing a Parking Benefit District programme in Sweden, but there are some limitations on how revenues can be used. Moreover, Sweden does not have this planning tradition and the programme may not be perceived as legitimate. Another important issue is equity and participation, e.g. it is important to consider who to include and how to include them.

Overall, the policy measures studied involve a shift away from an infrastructure-centred to a people-centred approach. However, other planning practices and institutions may push

in different directions. This thesis shows that a Social Practice Theory framework can be useful as a lens through which researchers and policymakers view possible changes needed to achieve a sustainable mobility paradigm.

Sammanfattning

Transport och mobilitet är viktiga komponenter i organiseringen och strukturen av människors dagliga aktiviteter. Transportsektorn ger emellertid upphov till stor miljöpåverkan, exempelvis växthusgasutsläpp och markanvändning. Governance av sektorn är komplicerad och det har skett ett skifte från en hierarkisk styrning mot en större delaktighet och samarbete mellan olika aktörer. Givet dessa utmaningar kan det finnas behov av att flytta fokus från att palnera för rörlighet till tillgänglighet samt att ändra planeringsparadigmer.

Syftet med avhandlingen är dels att kritiskt undersöka vad ett paradigmskifte skulle kunna innebära i det svenska nationella och kommunala transport-, bostads- och parkeringsplaneringssammanhanget, dels att undersöka hur ett Social Practice Theory ramverk skulle kunna bidra till förståelsen av ett sådant paradigmskifte. För att göra detta har avhandlingen undersökt tre policys som är i linje med ett paradigmskifte.

Alla policys som diskuteras i avhandlingen öppnar upp beslutsfattande för olika aktörer eller medborgare. Vidare lyfter alla diskuterade strategier fram behovet av att flytta fokus från fysisk infrastruktur till tillgänglighet och att samarbete mellan olika intressenter är nödvändigt. I varje fall finns dock förhållanden och praktiker som försvårar omställningen. Trafikverket framhåller exempelvis vikten av att minska behovet av att resa och av att använda befintlig infrastruktur mer effektivt, och de menar att dessa åtgärder bör övervägas innan nya infrastrukturinvesteringar. Samtidigt har Trafikverket begränsat mandat att finansiera dessa åtgärder, vilket ger upphov till tvetydiga signaler och frustration bland regionala planerare på Trafikverket. Papper I argumenterar för att ett mer funktionsorienterat mandat skulle kunna underlätta en ett paradigmskifte i linje med en 'sustainable mobility paradigm'.

I paper II diskuteras en förändring från miniminorm för parkeringsplatser vid bostäder, där byggherrarna måste bygga minst ett visst antal parkeringsplatser, till flexibla parkeringstal, där antal parkeringsplatser som ska byggas beror på den lokala kontexten och där andra mobilitetstjänster kan ersätta behovet av parkeringsplatser. I detta paper studeras personer som har köpt lägenheter i flerbostadshus med flexibla parkeringstal. Målet är att förstå dessa människors praktiker och hur de använder och uppfattar de mobilitetstjänster som tillhandahålls.

I papper III diskuteras möjligheten att använda ett nytt parkeringsverktyg, Parking Benefit Districts, i en europeisk kontext. Parkering Benefit Districts är ett koncept där parkeringsavgifter på gatan införs, höjs eller utökas. Intäkterna från parkeringsavgifterna återförs därefter till det område där de togs ut, och medborgare, eller andra intressenter i området, deltar sedan i beslutet om hur intäkterna ska användas. Syftet med denna åtgärd har traditionellt varit att öka acceptansen för parkeringsavgifter, eftersom parkeringsavgifter på gatan kan anses vara fördelaktiga av planerare, men impopulära bland medborgare och andra intressenter. Paper III nämner i analysen att det inte finns några legala hinder för att genomföra ett Parking Benefit District program i Sverige, men det finns vissa begränsningar för hur intäkterna kan användas. Planerare i Stockholms stad hävdar dock att Sverige inte har den här planeringstraditionen och påpekar att ett sådant åtgärd kanske inte uppfattas som legitim. En annan viktig fråga att diskutera är jämlikhet och deltagande. Det finns en risk att vissa grupper i samhället inte deltar i samma utsträckning och det är därför viktigt att överväga vem som ska involveras samt hur det ska ske.

I slutet diskuteras resultaten i relation till forskningsfrågorna. Alla de studerade policys skiftar fokus från fysisk infrastruktur till människors behov. Samtidigt finns det andra planerings praktiker och institutioner som drar samhällsutvecklingen i motsatt riktning. I avhandlingen diskuteras även hur ett Social Practice ramverk kan hjälpa både forskare och beslutsfattare att se de förändringar som behövs för att nå en 'sustainable mobility paradigm'.

Acknowledgements

List of appended papers

Paper I
Johansson, F., Tornberg, P. and Fernström, A. (2018). A function-oriented approach to transport planning in Sweden: Limits and possibilities from a policy perspective. Transport Policy, 63, pp. 30-38. doi: 10.1016/j.tranpol.2017.11.006.

Paper II
Johansson, F. and Henriksson, G. (2018). En modern entré till mer bilfria vardagsliv i Älvsjö och Haninge? Lägenhetsköpares resvanor, dagliga aktiviteter och förväntningar före flytt till BRF On Track och BRF Blicken, med mobilitetstjänster och låga parkeringstal, Manuscript.

Paper III
Johansson, F., Henriksson, G. and Åkerman, J. (2017). Parking Benefit Districts – The transferability of a measure to reduce car dependency to a European context. Transportation Research Part D: Transport and Environment. 56, pp- 129-140. doi: 10.1016/j.trd.2017.08.004.Paper D/IV

Author's contribution to papers

Paper I: FJ and PT contributed to the article to a similar extent. They planned and designed the study together, and performed similar numbers of interviews and participatory observations (AF carried out some interviews). Two researchers participated in most interviews. The interviews on the cases were split equally between PT and FJ, and FJ was responsible for the literature study and the interviews with national representatives (with assistance from AF). PT was responsible for the theoretical framework (in discussion with FJ). PT and FJ planned the article together. The introduction and research questions were written together. FJ wrote the methodological part (section 3) and the section on the STA's mandate (section 4).

Paper II: FJ was the main author of this manuscript. FJ and GH designed the investigation together. FJ had the main responsibility for designing the survey and conducted most of the interviews (18 out of 19). GH and FJ carried out field visits and informal interviews together. Most of the analysis was conducted by FJ, in discussion with GH. FJ wrote the main part of the manuscript. GH wrote section 4 (analysis and discussion).

Paper III: FJ was the main author of this article. He was responsible for the research design and the literature review, and conducted all the one-to one interviews. The focus group discussions were conducted together with GH. FJ wrote most of the article, with GH contributing some text.

List of abbreviations

SCM: Strategic Choice of Measures (Åtgärdsvalsstudie).

Four-step principle: A planning principle used by the Swedish Transport Administration.
(Fyrstegsprincipen   The idea is to consider measures that reduce the need to travel (so
in Swedish)   -called step 1 measures) and measures that use existing
                        infrastructure more efficiently (step 2 measures) before larger
                        reconstructions (step 3 measures) and new infrastructure
                        investments (step 4 measures).

PB: Participatory Budgeting

PBD: Parking Benefit Districts

SPT: Social Practice Theory

STA: Swedish Transport Administration (Trafikverket)

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Appendix: Paper I, Paper II, Paper III

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1. Introduction

Transportation and mobility are important components in the organisation and structure of people's daily activities. However, the transport system also has considerable environmental impacts, ranging from CO_2 emissions, air pollution and land use to resource extraction. For instance, the transport sector is responsible for a large proportion of greenhouse gas emissions and these emissions have to be cut rapidly if the terms of the Paris Agreement are to be met. Rockström *et al.* (2017) claim that there is a 50% probability of reaching the 1.5°C target and >66% probability of reaching the 2°C target relating to emissions reductions in the Paris agreement. They therefore propose a roadmap in line with the agreement where CO_2 emissions are halved every decade. Some researchers argue that these estimates are too optimistic, rely too much on negative emissions technologies and do not take into consideration equity aspects between countries (Larkin *et al.*, 2018:690). Taking these aspects into account, they argue that CO_2 emissions should be reduced at a faster rate in the short term (Larkin *et al.*, 2018). In line with the Paris Agreement, Sweden and several other countries have adopted a climate-political framework, with the goal of having zero net emissions of greenhouse gases by 2045[1]. The transport sector has been identified as particularly challenging and a goal has been set to reduce greenhouse gas emissions from domestic transport (excluding domestic flights) by 70% by 2030 compared with 2010 (SOU, 2016:21), which is in line with the roadmap (75% reduction in two decades) suggested by Rockström *et al.* (2017). Other researchers (*e.g.* Åkerman and Höjer, 2006; Hickman et al., 2013) argue that technological innovation is not enough to reach the greenhouse emissions target, and that there is also a need to reduce distance travelled and to change travel modes.

Another major challenge is land use. Transportation, especially by private car, takes up considerable space, which is a major problem in growing urban regions. For instance, the City of Stockholm has the goal of building 140 000 new apartments between 2010 and 2030, while at the same time it wants to densify the city and limit urban sprawl (Stockholm stad, 2016). As space is limited, the City of Stockholm highlights the need to prioritise space-efficient transport modes such as public transport, walking and cycling (Stockholm stad, 2012). Car parking is identified as a major challenge. Aboveground parking provision takes up considerable space and the City of Stockholm therefore wants developers to provide underground parking. However, underground parking is very expensive and may increase housing costs (Shoup, 1999) and reduce the number of apartments being built (Andersson *et al.*, 2016). Furthermore, some studies indicate that parking fees for residential parking do not cover the construction and maintenance costs for parking (Envall *et al.,* 2014), which may imply that households without a car parking space have to bear some of the costs of their neighbours' parking spaces. This is particularly problematic in cities where the costs of housing are high and increasing. As a solution to these

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[1]Other countries such as the UK have similar policies. Marsden and Rye state that "*The UK is the first country to have a legally binding internal obligation to meet carbon dioxide reduction targets* […] (Marsden and Rye, 2010: 670).

challenges, the City of Stockholm has recently changed the parking requirement for new apartments. Instead of stipulating a minimum number of parking spaces per apartment (1 parking space per apartment in 2007-2011), it now uses so-called flexible parking requirements (0.3-0.6 parking spaces per apartment), where developers can replace some of the parking spaces with other mobility services (Stockholm stad, 2015).

Considering these aspects, several researchers highlight the need to change planning paradigms (Banister, 2008; Litman, 2013). For instance, Banister (2008) argues that transport planning should shift from what he calls a "conventional focus", where the vehicle and the infrastructure are prioritised, to a "sustainable mobility paradigm", where people are prioritised. Another component of this paradigm shift is a change from mobility to accessibility. This is in line with Gudmundsson and Höjer (1996), who argue that people do not always need more mobility to increase access to different amenities, since access can be achieved in other ways: "[...] *there are other ways than physical movement to achieve access. This is particularly true in a world where other systems may provide the relevant services electronically with less physical movement of people. It would also be true in a world with more integrated social and urban structure*" (Gudmundsson and Höjer, 1996:275).

Other authors (*e.g.* Powell, 1990; Healey, 1998; Sager and Ravlum, 2004) report an ongoing shift in governance structures from conventional hierarchical planning, where one actor has the mandate over relevant measures, to a network where no single actor has a mandate over all possible measures and where dialogue and collaboration are therefore necessary. For instance, since the 1950s Swedish cities have used minimum parking standards, where the developers are required to provide a certain number of car parking spaces in new developments in order to obtain a building permit (Lundin, 2008). These requirements have tended to be quite inflexible and do not take into account factors such as construction costs or the location of the apartments (*e.g.* supply of services in the area, proximity to high quality public transport). In Stockholm, the parking standard was one car parking space per apartment between 2007 and 2011 (Sunnerstedt, 2017), at a time when car ownership by households was 0.4-0.6 car per apartment (Stockholm stad, 2015). Minimum parking standards were removed in 2011 and new guidelines have been used since 2015. These new guidelines permit dialogue with developers and replacement of parking spaces with mobility services. From an analytical perspective, these new guidelines could be interpreted as a shift away from hierarchical planning and towards a system in line with what Banister (2008) calls a "sustainable mobility paradigm".

1.1 Research context

The research described in this thesis was conducted within a context of intertwined environmental and social challenges. As mentioned above, the transport sector gives rise to several challenges such as greenhouse gas emissions and extensive land use. If environmental goals, for instance those stated in the Paris Agreement, are to be met, quite radical change compared with current practice is needed. At the same time, planning practices are changing from the conventional hierarchical top-down planning, where much of the power, instruments and mandate were located at the state level (although with some collaboration with other levels), towards a more decentralised planning system where the state no longer has the mandate and power over all necessary policy measures. Therefore,

it is argued that affected stakeholders need to be involved in the planning process (*e.g.* Powell, 1990; Sager and Ravlum, 2004) and new governance models have evolved, such as collaborative planning (Healey, 1998). These governance models are based on the assumption that preferences are not fixed, but can change in interaction with other stakeholders (Healey, 1998). It is argued that, in complex issues where long-term relationships are mutually beneficial to all stakeholders, aspects such as solidarity, trust and reputational concerns are important to stakeholders (Powell, 1990; Sager and Ravlum, 2004). The hierarchical governance model also tended to be sectoral, *i.e.* each sector planned separately (Healey, 1998), which Litman (2013) argues is part of an old planning paradigm.

Furthermore, there are arguments for involving citizens more directly in the decision-making process. In simple terms, there are two distinct reasons behind these arguments. Some argue that citizen involvement is necessary in order to increase the acceptance of necessary policy measures (*e.g.* Shoup, 2005; Banister, 2008). According to those studies, some policy measures (such as congestion charges and parking charges) are necessary in order to reach certain goals, but these measures tend to be unpopular and it is thus difficult to obtain political acceptance. By involving citizens in the decision-making process, it is argued that acceptance for such policy measures can be increased. The other argument for citizen involvement is linked to democracy, as it is argued that citizen involvement in decision making is beneficial for its own sake (*e.g.* by empowering citizens or by increasing trust in public institutions) (Learner and Secondo, 2012).

In light of these challenges and trends, some studies claim that it is necessary to change planning paradigms (Banister, 2008; Litman, 2013), meaning that basic, taken-for-granted assumptions need to be challenged. Banister (2008) discusses characteristics of the conventional planning system and suggests a new paradigm in order to achieve sustainable mobility. This new paradigm has some policy implications and has been adopted *e.g.* in the European guidelines for Sustainable Urban Mobility Plans (Wefering et al., 2013).

Table 1. Contrasting approaches to transport planning (lists taken directly from Banister, 2008:75)

Conventional paradigm	Sustainable mobility paradigm
"Physical dimensions	Social dimensions
Mobility	Accessibility
Traffic focus, particularly the car	People focus, either in (or on) a vehicle or on foot
Large in scale	Local in scale
Street as a road	Street as a space
Motorised transport	All modes of transport often in a hierarchy with pedestrian and cyclists at the top and car users at the bottom

Forecasting traffic	*Visioning on cities*
Modelling approaches	*Scenario development to take account of environmental and social concerns*
Economic evaluation	*Multicriteria analysis to take account of environmental and social concerns*
Travel as a derived demand	*Travel as a valued activity as well as a derived demand*
Demand based	*Management based*
Speeding up traffic	*Slowing movement down*
Travel time minimization	*Reasonable travel time and travel time reliability*
Segregation of people and traffic	*Integration of people and traffic"*

To highlight a few elements Banister (2008) argues that there is a need to shift focus from the "physical dimensions", *e.g.* parking spaces or streets, to people and what they perceive as desirable. For instance, residents in new apartments may desire to have a park instead of parking spaces. He also mentions the need to view streets as space instead of roads, for instance a street can be a space for socialisation and not merely a space for motor traffic, and underscores the need to shift focus from mobility to accessibility. Finally, he highlights the importance of involving citizens and stakeholders in the decision-making process and of having integrated policy packages that also include measures reducing the need to travel. These changes in paradigms require new appraisal methods, including a wider array of factors (Litman, 2013).

1.2 Aims of the thesis and research questions

The aims of this licentiate thesis were twofold: 1) To critically investigate what a paradigm shift in line with that suggested by Banister (2008) and Litman (2013) might mean in the Swedish national and municipal transport, housing and parking planning context; and 2) to examine whether the theoretical framework of Social Practice Theory can contribute in analysing such a paradigm shift. In order to achieve these aims, three different policies that are arguably in line with a shift in planning paradigm were investigated. These policies were:

- Sweden's national transport planning, with emphasis on the use of measures to reduce the need for mobility and measures aimed at using existing infrastructure more efficiently (Paper I)
- A critical investigation of a specific parking measure, namely the shift from minimum parking requirements to flexible parking requirements in Stockholm. Instead of requiring developers to build a minimum of parking spaces, the parking standard varies depending on the location of the apartments and is set in dialogue

between the developer and the city, *e.g.* the developer can choose to replace some parking spaces with other mobility services such as a car club (Paper II).

- A feasibility study of Parking Benefit Districts (PBD), a sustainable mobility measure with the focus on parking, in a European context. PBD is a concept where parking charges are implemented on curb parking and where residents (and/or other stakeholders) are involved in the decision on how to use the revenues (Paper III).

These three policies can be seen as a shift from 'a conventional planning tradition' towards a 'sustainable mobility paradigm'. The specific research questions that directed the work reported in this thesis are:

- Are there any current conditions or practices hindering these policy shifts?
- How do people use, relate to and perceive these policies and how do they seem to fit into the daily practices of residents and planners?

1.2 Outline of the thesis

The remainder of this thesis is structured as follows: A theoretical framework and a description of the methodology used are presented in Chapter 2. The results from Papers I-III are presented in Chapter 3 and discussed in relation to the research questions in Chapter 4. Finally, a concluding discussion is provided in Chapter 5.

2. Theory and method

2.1 Theoretical framework

The work in this thesis draws on Social Practice Theory (SPT). Social Practice Theory is a theoretical framework with inspiration from French sociologist/anthropologist Pierre Bourdieu and the British sociologist Anthony Giddens that challenges the use of individualistic and rational research methodologies, which they argue tend to give individual agency too much weight, thus downplaying collective, culturally constructed, agency (see *e.g.* Shove, 2010; Shove *et al.*, 2012). Individualistic methodologies tend to put the responsibility for change on individuals and assume that behaviour will change if attitudes change, although the importance of contextual variables is acknowledged (*e.g.* Kurz *et al.*, 2015). Some studies report that individualistic methodologies dominate in transport planning and that more structural perspectives are needed (Marsden *et al.*, 2014). Others show that these individualistic methodologies tend to emphasise cognitive habits and neglect embodied habits (Schwanen *et al.*, 2012). In contrast, SPT is based upon the assumption, in line with Giddens and Bourdieu, that behaviour is mutually constructed by material and socio-cultural structural factors, as well as individual agency. This means that SPT rejects the dualism between structure and agency, and instead argues that structure and agency mutually construct each other (Feldman and Orlikowski, 2011). For instance, unconscious norms and values influence human behaviour and sometimes even what they can or cannot do, but these norms are constantly changing as people do things differently. New technologies may also alter what people can do, as well as altering the norms, values and conventions in society. Reckwitz defines a practice as:

"[...] a routinized type of behavior which consists of several elements, interconnected to one another: forms of bodily activities, forms of mental activities, ´things´ and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge (Reckwitz, 2002, *cit.* Kuijer *et al.*, 2013:21)"

Social Practice Theory focuses on social practices rather than individual behaviour. According to the terminology of SPT, people are recruited to practices and become carriers of practices. People's behaviour is formed by what they do and by established routines (of which some are unconscious, since routinised behaviour makes everyday activities easier (*e.g.* Berger and Luckmann, 1991), but also by what other people do and have done in the past. This means that there is an iterative process where the practices are constantly being reshaped (Kennedy *et al.*, 2015). According to those authors, "*Shifting behavior is not simply a matter of deciding to do so, but an ambitious pursuit involving the acquisition of new knowledge, the alteration of other routines, the overturning of cultural norms, and the reconfiguration of subtle relations of power*" (Kennedy et al., 2015:5).

This means that SPT strives to find a balance between structure and agency, meaning that there is a social structure that influences behaviour, but that that there is also scope for individual action (or more precisely that these aspects are mutually constituent). By drawing on SPT, the researcher shifts the focus from the individual actor to the practice itself. Social Practice Theory argues that mundane activities are continuously constructed through engaging in the practice, *i.e.* practice is constructed and reproduced by performing the practice and without performance there is no practice. To make the concepts clearer, researchers have divided practices into two concepts, *practice-as-entity* and *practice-as-performance* (Shove *et al.*, 2012). A practice exists through performance, *i.e.* if a practice ceases to be carried out, it also ceases to exist (or it only exists insofar as it is exercised). A practice that is routinely carried out becomes stable to a certain extent (at least temporally), which is referred to as practice-as-entity. When a practice is carried out, it is referred to as practice-as-performance. Practice-as-performance is a contextual activity which can (at least to some extent) deviate from the routinised practice-as-entity. When a practice is performed in new ways, the practice-as-entity also changes. The implication of this is that practice-as-entity is dynamic and constantly changing. People thus become carriers of practice.

In order to conceptualise SPT, researchers have categorised the elements that constitute a practice. Shove et al. (2012) specify three elements of a practice, namely stuff, meaning and skills. *Stuff* refers to the material aspects, such as a car, infrastructure, parking spaces *etc.*, *meaning* refers to collective norms, values, rules, cultural rituals *etc.*, and *skills* refers to knowledge and competence.

It is important to underscore that it is not only the elements that constitute a practice, but also the links between elements, which are established through practice-as-performance. Similarly to activity-based research, SPT highlights the importance of the interdependency of one practice with neighbouring practices (Shove *et al.*, 2012; Cass and Faulconbridge, 2016). Neighbouring practices, so-called bundles of practices, influence and affect each other. For instance, the adjacent practice of leaving children at school influences commuting practice, and *vice versa*.

2.1.1 Examining interventions and policies from a Social Practice Theory Perspective

Viewing an intervention from an SPT perspective means shifting the focus away from the individual towards the practice itself. Individuals become carriers of practice and the practice-as-entity is constantly being shaped and reshaped by these carriers of practice. New practitioners can also become recruited to the practice-as-entity and, as they may perform the practice in slightly different ways, the practice-as-entity changes. Practice-as-entity is thus dynamic and constantly changing, but many of its elements are also robust and rather stable over time.

In order to attempt to change a practice, a policymaker can decide to introduce certain elements, for instance an item (car club, bike club, bike service kit, home delivery box *etc.*). This item becomes a so-called proto-practice (Shove et al., 2012). Residents in the building may then engage in practice-as-performance (*e.g.* commute to work), and thus establish links between the items (a car club), built on existing meanings (*e.g.* on what comfort is), new meanings (*e.g.* new concepts of comfort) and new skills (*e.g.* knowledge of how to reserve a car in the car club). Furthermore, links are established with related bundles of practices, such as picking up children from school, recreation, grocery shopping, as well as related discourses, such as health and active transportation (and discourses resisting change). It is the way in which these links between elements and practices are constituted that establishes a (new or revised) practice-as-entity. As practice-as-entity is constituted through the performance of practitioners, a policymaker can never be sure of the outcome of an intervention (practitioners may not use the item in their daily lives, or may use it in ways not imagined by the policymaker). However, there are ways to facilitate change. In SPT terminology, the proto-practice may, or may not, lead to a crisis of routines, which may cause a change in the practice-as-entity.

Let us now turn to the question of how to promote change. As Bourdieu and Giddens mention in their pioneering work (see *e.g.* Kennedy *et al.*, 2015), one way to initiate change is by making unconscious structures conscious. Giddens makes a distinction between *practical consciousness,* which are structures enabling people to perform everyday activities, and *discursive consciousness,* which enables individuals to question and challenge routines (Kennedy *et al.*, 2015). By shifting from practical consciousness to discursive consciousness, people are given something to act on. Deliberative change is made possible, but it does not necessarily mean that change will occur.

2.1.2 Social Practice Theory as a tool for making sense of change and resistance to change

Social Practice Theory is not only a useful theoretical framework in designing policy interventions, but can also be used for evaluating and making sense of an intervention. The objective in this thesis was to determine whether SPT can help make sense of *why* changes occur and *why* they do not occur. In this perspective, SPT can be used to understand what people associate with different transport modes, the skills required (and lacking) and the material needed. For instance, a study on cycling in the UK found that people associated car commuters with professionalism (*meaning*), that people had a fairly low access to bicycles and lacked showering facilities at work (*stuff*) and that people felt unsafe cycling due to surrounding car traffic (Spotswood *et al.*, 2015). Through this perspective, SPT can be used to understand current conditions that render sustainable practices more difficult.

A SPT lens is used to take a new look at the three policies selected for study in Papers I-III in this thesis.

2.2 Methodology

The methodology used in the research presented in this thesis was mainly qualitative and mainly involved conducting interviews. However, focus groups discussions, document analysis and surveys were also used. All methods used are presented in the following subsections, followed by a brief methodological reflection in section 2.2.5.

2.2.1 Interviews

Interviews were the main method used for data collection and were used in all papers. The purpose with the interviews was to investigate the practices of different selected stakeholders (and how they are bundled with other activities) and their perceptions and interpretations of different transport modes, mobility services and planning practices (*e.g.* associated norms, competences needed *etc.*). The research was underpinned by a social constructivist epistemology.

The interviews were semi-structured (Kvale, 1996), which means that a set of themes was prepared before the interviews. During the course of the interviews, the follow-up questions depended on the informant's replies and on the course of the interview. The order of the questions also changed somewhat depending on the course of the interview. This means that the informants were not all asked the same questions and that the questions did not necessarily come in the same order. The interviews tended to resemble a conversation and attention was paid to the themes and ideas brought up by the informants. The questions in the interviews were formulated in an open way, giving the informants the possibility to describe the events in their own words, and efforts were made to avoid questions that steered the informants too much.

In Paper I, interviews were conducted with 21 informants. These interviews were iterative, *e.g.* some of the informants were interviewed several times and the findings in one interview were often used to formulate questions in a subsequent interview. Some of the interviews were conducted to shed light on a particular question, while others were more open-ended. The interviews were used to understand how different actors interpreted and perceived different issues, and they were documented with extensive notes. All the quotes in the final manuscript were checked and approved by the informants.

In Paper II, formal interviews were conducted with 19 informants (11 buyers of apartments in one development and eight buyers of apartments in another development). In addition, an information meeting was attended, during which two informal short interviews were conducted with future residents, and a field trip was made to one of the developments where residents had already moved in, and short informal interviews were conducted with residents encountered outside the building (two informants). All the interviews were open-ended and the idea was to obtain information about how the informants organise their daily activities, why they decided to move to the new apartment, whether they knew about the mobility services and how they plan to travel when they live in their new apartment. These interviews were complemented with the interviews with people who had moved in to their new residences. The longer formal interviews were recorded and transcribed. The informal short interviews during the field visits were documented with extensive notes.

Seven interviews were conducted in Paper III (six with public officials and transcribed, one with a local politician and documented with extensive notes). The quotes from the six interviews with public officials were checked and approved by the informants.

2.2.2 Document analysis

In paper I and paper III, a literature review (Papers III) and document analyses (Paper I) were also used to collect information. The results of these analyses were used to formulate research questions and to compare and contrast the findings in the documents with the views and interpretations of different stakeholders.

The document analysis in Paper I was conducted on official documents with instructions and directives regarding the use of step 1 and step 2 measures in national transport planning[2]. The wordings in these documents were compared and contrasted with regional and national officials' interpretations. The analysis included the following documents (Paper I:32):

- Government decrees on national and regional plans, co-financing and instructions to the STA
- Relevant government bills, assignments and related inquiries.

The literature review in Paper III was conducted to collect information about existing PBD programmes. As there is little academic literature on PBD, most of the documents reviewed were grey literature. The idea was not to review all existing literature, but rather to identify key aspects of a PBD programme and to use the findings to formulate interview questions and to consider possible designs of a PBD programme in a European context.

2.2.3 Focus groups

The focus group discussion in Paper III was held after the literature review and the interviews. The informants were gathered together to discuss identified challenges as a group. In contrast to semi-structured interviews, the aim with focus groups is the interaction between participants (Kitzinger, 1994). The idea was to bring up issues raised in the interviews and let the participants discuss and reflect upon these topics together. As the informants came from different departments in the City of Stockholm, this discussion gave valuable input to the analysis.

2.2.4 Surveys

In Paper II, a questionnaire was sent out to everyone who had bought an apartment in the two developments covered by the study. The survey included questions regarding socio-demographic factors, travel habits, vehicle ownership *etc*. The survey results were used to select informants for interviews and for some descriptive statistics. A similar questionnaire was sent out autumn 2018, when people have moved into the apartments. Everyone who completed the questionnaire received two cinema tickets, but the response rate was still fairly low (around 37%).

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[2]Measures aimed at reducing the need to travel (step 1) and measures aimed at using existing infrastructure more efficiently (step 2).

As the response rate was low, it is important to bear in mind that the results may be skewed in some direction (if a specific group had a higher propensity to respond to the survey). A comparison of the answers in the survey and the answers in the interviews also indicated that some questions may have been interpreted in different ways by informants (*e.g.* the question regarding access to a car). This is also important to bear in mind when considering the results.

2.2.5 Methodological reflections

The methodology used was based in social constructive research epistemology, which means that, apart from mapping practices, the collected data should be seen as interpretations of different events, rather than 'truths' in their own right. Differences in terminology are also seen as social constructions that are given meaning by the use of the term. This signifies that the meaning of different terms is dynamic and constantly changing, but also that historical use has a certain path dependency and that it may take time to change meaning.

Interviews and questionnaire surveys are always tainted with subjectivity (Kvale, 1996). The answers depend on the framing of the question, on common language codes, how the questions are formulated, whether and how the researcher chose to follow-up certain questions *etc*. This absence of objectivity does not necessarily undermine the scientific robustness of the study. By approaching the research question from different angles, it is possible to gain different insights and perspectives (Alvesson, 2003), which can be useful in understanding the impact of a policy measure.

3. Summary of papers

3.1 A function-oriented approach to transport planning in Sweden: Limits and possibilities from a policy perspective

Paper I studies Swedens national transport policy and whether this policy is in accordance with the 'sustainable mobility principles'. A guiding principle in Sweden's transport planning is the so-called four-step principle, which stipulates that measures affecting the need to travel (step 1) and measures aiming to use existing infrastructure more efficiently (step 2) should be considered before larger reconstructions (step 3) and new infrastructure investments (step 4). These principles seem to be very much in accordance with the 'sustainable mobility principles'.

Paper I shows that some institutional changes in line with these principles occurred around 2010 (see Johansson *et al.*, 2018; Fernström *et al.*, 2016). For instance, the Swedish Transport Administration (STA) stated that it is a 'society developer' and no longer an 'infrastructure builder' (STA, 2015), which seemed to indicate a broader planning scope. The STA also developed a new method for early feasibility studies with the objective of shifting the focus from the infrastructure to desired functions/identified problems. This method for feasibility studies, Strategic Choice of Measures (SCM), is intended to be used before new investments in infrastructure. The SCM method involves a range of relevant stakeholders, who collectively define pertinent problems to be solved and objectives to be reached. The idea is to challenge taken-for-granted solutions and to investigate whether there are other more pertinent solutions and measures, with step 1 and 2 measures being highlighted in this methodology. At the end of the SCM study, the responsibility for identified measures is assigned to different stakeholders and an agreement is signed by the stakeholders. This methodology is in line with shift from a hierarchy to a network form of goverance. However, early evaluations of SCM studies indicate that step 1 and 2 measures tend to be neglected (Odhage, 2012).

The objective in Paper I in this thesis was to determine why step 1 and 2 measures tend to be neglected, with particular focus on the STA's mandate. The results show that the STA has a formal mandate to work with all steps of the four-step principle. However, according to officials at the STA's central administration, this means that the STA can finance measures at state infrastructure level. Measures at the infrastructure level of other authorities (unless a formal mandate is given in governmental assignments) are regarded as co-financing and can only be granted to physical measures. As many step 1 and 2 measures are intangible, and not directly linked to state infrastructure, they are dependent on actors other than the STA[3] implementing them. Furthermore, Paper I shows that many regional planners at the STA find their mandate unclear regarding certain step 1 measures, especially information measures and mobility management measures.

Paper I also shows that this uncertainty gives rise to exaggerated caution among many planners, *i.e.* that they tend to not finance certain measures to be on the safe side. The

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[3] For example municipalities, regions, companies.

central administration at the STA has sent out communiqués to reduce these uncertainties, where they state that regional planning authorities may have to make refunds if they have financed measures they did not have the mandate to finance (Trafikverket, 2018). Despite these comminiqués, regional planners still find the mandate unclear.

Interviewed process leaders at the STA reported feeling frustrated over the STA's inability to finance certain measures that they deem most suitable. As many step 1 and 2 measures lie within the responsibility of actors other than the STA, it is up to these actors to implement them. The role of the STA, according to the findings in Paper I, is then to create commitment among these actors to the measures through the SCM study. However, some measures may not clearly fall inside any single stakeholder's responsibility and may thus risk 'falling between the cracks'.

The results in Paper I indicate that the SCM study may strengthen stakeholder trust in the STA, as they are involved in the process, which according to the literature is an essential component in network governance (Powell, 1990; Sager and Ravlum, 2014). However, the results also indicate that the SCM study can damage the trust in the STA. The interviewees indicated "*that the STA mandate may cause ambiguous signals to other stakeholders*" (Paper I:35). The STA emphasises the importance of step 1 and 2 measures, but at the same time it does not have the mandate to finance these measures. This may result in ambiguous signals being sent to other stakeholders and may cause some of the stakeholders to doubt the STA's intentions. In Paper I, it is concluded that "*The conditions among the actors the STA is dependent on for cooperation are therefore at risk if such relational qualities are reduced*" (Paper I:35).

It is thus argued that SCM studies may strengthen cooperation and trust between actors, but that the STA's limited mandate to finance step 1 and 2 measures may cause ambiguous signals and damage the trust and relationship between actors. In the words of one interviewee:

"*The parties [involved in an SCM] find it strange that the state cannot take responsibility over step 1 and 2 measures aimed at for instance influencing transport demand, i.e. mobility management. Now it is their responsibility. We [the STA] take responsibility for the planning, but then they should be responsible for the measures, even if the largest benefit is for the facility the STA is responsible for. When it comes to our infrastructure, we do the other way around. Then we want local and regional parties to co-finance if it is in their interest, but when it is the same for their infrastructure we cannot do the same*" (Paper I:35).

As a result of these problems, a recommendation is made in Paper I to change the STA's mandate from financing measures tied to state infrastructure to a function-oriented approach where measures that contribute to goals of the STA can be financed. This would facilitate a shift towards a 'sustainable mobility paradigm'.

3.2. En modern entré till mer bilfria vardagsliv i Älvsjö och Haninge? Lägenhetsköpares resvanor, dagliga aktiviteter och förväntningar före flytt till BRF On Track och BRF Blicken, med mobilitetstjänster och låga parkeringstal

Paper II has a different focus than the other two papers in the thesis. Papers I and III discuss current conditions, practices and governance issues of proposed policies, while Paper II analyses how residents perceive and integrate (or not) new parking regulations and mobility services in their daily lives.

Paper II studies citizens who have bought apartments in two residential blocks built with so-called flexible parking requirements, with particular focus on how and why they travel and how they perceive the mobility services provided and the parking situation at their new residence (and whether this affected their decision to move there). Earlier studies reviewed in Paper II describe how the City of Stockholm, as well as many other cities, has used minimum parking requirements since the 1950s (Lundin, 2008), where the municipality requires the developers to build a certain number of parking spaces for new residences within the terms of their building permit. The requirement has varied over time, but between 2007 and 2011 it was 1 parking space per apartment in Stockholm[4] (Sunnerstedt, 2017), at a time when car ownership among households living in apartments in Stockholm was 0.4-0.6 cars per apartment (Stockholm stad, 2015). The minimum parking requirement was removed in 2012 and in 2015 Stockholm implemented a new parking policy (*Guidelines for Project-specific and Green Parking Requirements*). These new guidelines are more flexible and offer developers the opportunity to replace car parking spaces with other mobility services. The guidelines also highlight the importance of dialogue between the developer and the city authority.

Paper II presents results from a survey of people who have bought an apartment in two developments (one in Stockholm[5] and one in Haninge municipality[6]) built according to

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[4]In practice, fewer parking spaces were often built (Envall *et al.*, 2014).
[5]The development, named On Track, consists of 157 small and medium-sized apartments targeted towards a young resident group. All residents in the development receive free membership in a vehicle club (with cars, electric cargo bikes and electric bikes) for five years and residents who do not rent or queue for a car parking space receive a free public transport card for one year. Bicycle parking spaces are designed to be visible and easy to access. The development is located next to high quality public transport (a commuter train and buses) and a local centre with services. 38 car parking spaces are provided to residents.
[6]The development, Blicken, is the first phase in a larger development. Blicken contains 85 apartments. The development is constructed on top of a bus station, which makes underground parking impossible. Cars will instead be provided in a separate parking facility. Blicken is located next to high quality public transport (commuter train, buses) and near Haninge centre. The mobility services provided are: a 30-day trial on public transport, membership of an electric vehicle club (cars, cargobikes, bikes), discounts on

these new more flexible principles. The buyers of the apartments were sent a questionnaire and were interviewed before moving to the new developments. The questionnaire was sent out to 262 individuals who had bought an apartment in the developments[7], and a similar questionnaire will be sent out during the same period in 2018. The survey had two purposes. Firstly, it provided information about travel habits, vehicle ownership and socio-demographic factors. Secondly, the survey results were used to select informants for interviews. In, total 19 semi-structured interviews were conducted with buyers of apartments. Similar surveys and interviews will be conducted with residents in the developments when they have moved in. The interviews gave information regarding the buyers´ travel practices, as well as how they perceive and use parking facilities and mobility services before moving in.

The results indicate that the parking and mobility aspects of the new apartments have not influenced the choice of moving to the apartments to any large extent. There are other aspects that influence the choice of apartment, such as having family and/or friends in the vicinity, moving closer to public transport, moving to a newly built apartment, the price of the apartment and that it is perceived as a good investment (many interviewees assumed that the monetary value of their apartment will increase)[8]. Furthermore, the results indicate that many of the informants did not follow a classical rational decision-making process when choosing the apartment. In many cases, someone told them about the apartments, they checked them out and then decided to buy. Many of the buyers thus did not consider several different apartments in different locations. The socio-demographic situation of the buyers was compared with results from a regional survey (SLL, 2016).

Not everyone was aware of all the mobility services provided, especially not the buyers in the development in Haninge. Most people were aware of the car club offer, but many people were not aware of the cargo bike club. In the development in Älvsjö, some people also had misunderstood the offers. Several thought that they could either choose a membership in a car club for five years or a free public transport card for one year. The actual offer was either renting or queuing for a car parking space or receiving a free public transport card for one year. In the words of one of the informants:

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rental cars and taxis, a free trial on rental cars and personal travel planning advice. In total, 40 car parking spaces are provided.
[7]The questionnaire was sent out during weeks 43-44, 2017.
[8]However, interviews were only conducted with people who had bought an apartment, and not with people who decided not to buy. There may thus be certain people who decided not to move to these apartments due to the parking situation. Bonava, the developer building On Track, say that they did not see any indications of people not choosing to move to the development due to the car parking situation (Kakavand, 2018). However, Riksbyggen, the developer of Blicken, stated that some potential buyers decided to not buy an apartment due to the low number of provided parking spaces "*The parking issue was a hot topic in this project. Unfortunately, there were individual stakeholders who chose not to buy an item in this project because of the low parking requirement*" (Oussi, 2018).

"What, this is totally new! Ok. That is almost better. Then you get both a car club, yes you get the membership, and then a SL-card [the public transport card].

Interviewer*: Yes exactly, but you haven't received that information?*

No. Everyone I asked have said that either a car club, the membership, or a SL-card."
(Informant 4)

Furthermore, several informants stated that the information they had received about the mobility services was quite vague and not detailed enough to help them decide whether to get rid of their car. The car club in particular was perceived as a potential substitute for a private car by certain individuals, but some people felt unsure about how the service works in practice, *e.g.* whether there will be a car available for them when they need it. Some people only needed a car for certain activities and they thought that a car club could be a viable alternative to car ownership for them, especially if it reduced their mobility costs. However, as mentioned, they felt unsure about how the service works, and said that they will bring their car to the new apartment and see for themselves how the car club works before deciding whether to keep their car or not.

The results in Paper II indicate that the people moving to the new houses have little personal experience of car clubs. This lack of personal experience is something that contributed to the uncertainty regarding to how to use the vehicle clubs. Lacking personal experience, people tended to form their perceptions from other people's experiences. One informant stated that a car club could be interesting, but that she did not know anyone who thinks it works well. Another informant said that he had a friend who sold his car and joined a car club, and the friend is satisfied and has lowered his mobility costs. These aspects indicate the importance of other people's behaviour and opinions.

Linked to this aspect of limited personal experience is the access to a functioning bike. The surveys indicated that 40% (in Blicken) and 60% (in On Track) of the buyers have access to a functioning bike, and that 30% (Blicken) and 20% (On Track) have a broken bike. The interviews indicated that some people stopped using the bikes when they were damaged and that they never got around to fixing them. In one case the bike had been out-of-order for 10 years.

The informants in this study can be categorised into different groups based on their activity pattern, planned travel habits and vehicle ownership when moving to the new apartments. Five such groups were identified, as outlined in Tables 2-6.

Table 2. Informants who have bought an apartment in On Track/Blicken. Group 1: No car – no need for a car

Group 1.   No car – no need for a car
People in this group have activity patterns where they do not need a car. Some people in this group live with their parents and others live alone in apartments.

Table 3. Informants who have bought an apartment in On Track/Blicken. Group 2: No car – need a car

Group 2.   No car – need a car
People in this group do not own a car, but some have access to their parents' car. They have more dispersed activity patterns, and perceive the need for a car for certain trips. Everyone in this group currently lives with their parents and is moving away from home. Some of them are in the process of obtaining their driving licence. People in this group may aquire a car on moving to the new development. However, it is also possible that the mobility services may provide accessibility without the need to own a private car.

Table 4. Informants who have bought an apartment in On Track/Blicken. Group 3: Own a car – have decided to sell the car

Group 3.   Own a car - have decided to sell the car
Households in this group own a car, but have decided to sell the car on moving to the new apartment. They currently use the car for commuting to work, holidays, visiting family and friends, giving children a lift to training activities etc. However, on moving to the new development they will have access to considerably better public transport. One of the informants, who commutes by car to work, chose the new apartment to reduce the need to commute by car. Other informants intended to bring their car, but decided to sell it when informed about the parking situation.

Table 5. Informants who have bought an apartment in On Track/Blicken. Group 4: Own a car - contemplate selling the car

Group 4. Own a car - contemplate selling the car
People in this group live in a household with access to a car, but they do not use the car every day. The group consists of people who commute by public transport and mostly use the car during the weekends and retired people who do not use the car every day. People in this group perceive a need for a car for certain errands, but the mobility services (especially the car club) may provide mobility options without them owning a car. However, the car club concept is not well known and people feel unsure about the concept, e.g. whether a car will be available when they need it. Members of this group have positive perceptions of the mobility services at the new apartment, as they provide a range of mobility options (together with good location of the apartments), and therefore believe they will be less dependent on the car. Some of the informants said that even though a car club may replace the need for a private car, they plan to bring the car to the new development and test the mobility options and the car club before taking a decision on whether to get rid of the car or not. The information they had received to date was not enough to make such a decision. The car is important for some people in the group, and some of the informants would not have bought the apartment if they had not been promised a car parking space.

Table 6. Informants who have bought an apartment in On Track/Blicken. Group 5: Own a car – plan to keep the car

Group 5. Own a car– plan to keep the car
People in this group have at least one car in their household and plan to keep the car on moving to the new developments. All informants in this group have at least one person in the household who uses the car to commute to work. They also use the car for a range of other activites, such as weekly grocery shopping and visiting remote places. They believe that they will need the car when they move to the new apartment and do not have any plans to get rid of it. They all believe that the car will still be needed for commuting to work when living in the new apartments. People in this group have positive perceptions of the mobility services, however. One informant mentioned that car traffic has to decrease for envionmental reasons and that it is good that developers are working on reducing car traffic. Others said that at some time in the future, when they are retired and no longer need a car, they may sell the car and that it is therefore positive that the developers provide a range of mobility options to the residents.

Some of the conclusions that can be drawn in relation to these categories are summarised below.

- **Car commuting as a precondition:** Everyone in Group 5 (Own a car– plan to keep the car) has someone in the household who uses the car for commuting. As they will need a car for commuting on moving to the new apartment, they believe they need to own a car. A car club or rental car was not perceived as a possible substitute for a private car for people who use a car daily. However, one informant in this group stated that if he could solve his commuting without a car, a car club could be an option to private car ownership. Another informant in this group stated that she will retire in a few years' time, and when she and her husband are retired they will no longer need a car for commuting. The mobility services provided (particularly the car club) may then be an option to private car ownership in their case.

- **Need a car for a limited range of activities:** Some of the informants only occasionally need a car. They have activity patterns that seldom require access to a car. However, most of the informants perceived a need for a car for certain errands and activities, such as visiting family and friends, weekly grocery shopping, buying bulky things, sport activities, taking children to different activities *etc.* For some informants and for some activities, it was considered easy to shift transport modes (*e.g.* by changing to a gym at walking distance from home or by shopping at grocery stores near home). For other activities, it was perceived to be more difficult to shift modes, and many of the informants thought that a car club could perhaps be a solution. However, they were unsure about how the car club works in practice and some therefore wanted to wait and see before deciding whether to get rid of their car. There are also households without access to a private car that sometimes need a car. Mobility services can improve their life situation and reduce (or postpone) the need to acquire a car.

- **Retired people, a potential target group:** The interviews also indicated that retired people were an interesting target group. All retired interviewees reported living in detached houses before moving to the new apartment, and they all said that they do not travel as often as before. One of these households had decided to get rid of the car on moving house. The other two households planned to keep the car, but said that a car club could potentially be an alternative to private cars, but they wanted to keep the car to see how the car club service works in practice before selling the car. A car club was perceived as something positive, especially if it could contribute to reduced mobility costs. One of the informants in Group 5 (Own a car– plan to keep the car) mentioned that she will keep the car until retirement, to commute to work, but when retired may use the car club.

- **Planning in this way is perceived as modern:** Most people were positive or very positive to the mobility services, even those interviewees who did not think they would use the services. Several informants perceived the services as 'modern' and the way to plan apartments in the future. One informant said that these services will probably increase the value of the apartments, while another said that it is valuable to have a range of different mobility options and not be dependent on

the car. Yet another said that car traffic has to be reduced (even though she needed a car) for environmental reasons, and that these services were in line with this.

The results in Paper II were obtained in interviews and surveys of people who have bought an apartment, but before they moved in to the apartment. The results thus reflect the informants' travel habits, views and perceptions of mobility services and future travel habits. However, these views and perceptions should not be confounded with their actual practices on moving in to the new apartments. In the post-evaluation stage of the project, we will compare and contrast residents' actual practices with their expectations before moving.

3.3 Parking Benefit Districts – The transferability of a measure to reduce car dependency to a European context

Parking Benefit Districts (PBD) is a concept that has been used in several cities in the US (Kolozsvari and Shoup, 2003; Shoup, 2004, 2005, 2016) but, to my knowledge, has not been used in a European context. Paper III investigates the transferability of the principles behind PBD to a European context (Stockholm) and whether such a programme could contribute to reduced car dependency, and thus also to environmental and social sustainability.

Parking Benefit Districts is a concept where revenues from on-street parking charges are returned to the area where the charges are imposed, and stakeholders (citizens living in the area or other stakeholders) are involved in decisions on how to spend the revenues. The concept has generally been used to *create acceptance* for parking charges by involving stakeholders in the decision-making process and by showing them what the revenues are used for. In some cases in the US, PBD has been a key factor in creating acceptance for on-street parking charges (*e.g.* Kolozsvari and Shoup, 2003).

In many cities, such as Stockholm, on-street parking charges are seen as an important component in integrated policy packages aimed at improving accessibility, reducing land use and contributing to a more sustainable transport system. On-street parking charges are tightly linked to parking regulations for new housing developments, offices and commercial areas. Informants in Paper III reported fearing that if on-street parking is free and unregulated, people may decide to park on the streets instead of in off-street parking facilities, which may be a problem as cities may want to use street space for purposes other than curb parking. However, stakeholders (residents, business owners *etc.*) tend to be negative towards on-street parking charges. The idea behind PBD programmes is to return revenues from parking charges to the community and involve affected stakeholders in the decision on how to use the revenues, and thus increase the acceptance. As a consequence, these programmes tend to focus on the stakeholders most likely to oppose the charges (*e.g.* residents in a neighbourhood, but not visitors) (Shoup, 2005).

In Paper III, a link is made to other similar direct democracy programmes, such as participatory budgeting (PB), that focus on the benefits of participation for its own sake. These initiatives have been launched to deepen democracy, increase transparency, increase trust in government, help build communities *etc.* (Secondo and Learner, 2012). A PB programme follows a similar procedure as a PBD programme, with the exception that the funds generally come from the central treasury and not directly from on-street parking charges. Paper III argues that as PB and PBD programmes resemble each other, it is likely that a PBD programme could have similar effects. However, the design of a PBD programme should vary depending on the purpose (*e.g.* regarding participation).

Paper III shows that there are no legal barriers that render a PBD impossible in Sweden, but there are some barriers that need to be taken into account. First, on-street parking charges cannot be implemented with the purpose of raising revenues. The purpose should instead be to manage traffic. Second, the decision to implement on-street parking charges must be taken by the city council, but stakeholders can give recommendations to the city council. Third, Swedish municipalities have to follow a so-called 'principle of equal

treatment', which means that they cannot give certain individuals or other stakeholders specific benefits. This means, in more concrete terms, that municipal spending cannot be earmarked for specific individuals (*e.g.* subsidised public transport cards for certain individuals). Furthermore, municipalities cannot transfer money to other public institutions (*e.g.* the county council). As the county council is responsible for public transport, this limits the possibility to use parking revenues to improve public transport. This formal legal framework indicates that it is possible use PBD principles in a Swedish context, although with some limitations.

Interviews with city officials indicate that a PBD programme would entail a new way of planning to which the Swedish planning tradition is not accustomed. The informants found the principles of PBD interesting and in line with the city's social sustainability policies, but were hesitant regarding whether it will work in Sweden:

> *"The principle is very exciting, very interesting. And I think it is very exciting as a way to get commercial actors or property owners or even individual citizens to be interested in charging for on-street parking. It could come as a citizen initiative instead of from the municipality. But I also think the potential it gives to local organizations of commercial actors or property owners to take more ownership of their street would be interesting. To remove the need that the municipality needs to come and fix things, and that we can fix the things we need to fix instead. That it will be as we want it to be, this is very interesting. But I wonder how open Sweden is to these things. One expects a lot from the municipality and from the state. But it would be interesting to know if these measures could work in Sweden".*
> (Chief Strategy Officer for Transport & Streets, City of Stockholm)

> *"[…] it feels like it is very much in line with the policies the new deputy mayors in Stockholm are interested in. They are really interested in human rights, social sustainability and such things. We have a social sustainability commission, we have quite a lot of these tasks. […] This direct focus seems to fit quite well [with the social sustainability goal]. But Swedish municipalities are not used to working with such measures".*
> (Strategic traffic planner 1, City of Stockholm)

Swedish municipalities are more accustomed to more centralised planning, and, as the quotes above indicate, the officials interviewed wonder whether Sweden is prepared to use these new concepts. Some of the informants were worried that PBD-inspired planning may be viewed as a policy where the municipality avoids its responsibility, instead of a policy where different stakeholders are empowered. If this is the case, the legitimacy may be compromised, at least in the short run.

Another important issue is equity. Several informants pointed out that there is a higher concentration of affluent people in more central areas of Stockholm, and in central areas there tend to be more visitors and parked cars. Therefore, if implemented on a larger scale, a PBD programme might result in distribution of revenues to more affluent areas of the city, which may not be politically desirable. A solution to this could be to use allocation keys for revenues, *i.e.* where the revenues from parking charges are not directly returned to

the area where they are imposed, but distributed among areas according to specific indicators (*e.g.* population, higher share to more marginalised areas). With allocation keys, a PBD programme can lead to re-distribution of revenues from affluent to more marginalised areas. However, such a policy may reduce the direct link between on-street parking charges and revenues in the area. Another possibility, discussed in Stockholm, is to only use a PBD programme in marginalised areas as a way to empower citizens. Yet another possibility is to use PBD with commercial actors (*e.g.* in a city centre) as a way to get acceptance for parking charges.

Another important issue is participation rates. The participation rate in participatory schemes (such as PBD) tends to be low and skewed (a certain group of people participating), and the participation rate in local elections tends to be considerably higher. Given this situation, there is a risk that a PBD programme will only give voice to certain groups and to their concerns, which may be undesirable and may undermine the legitimacy of the programme. Considerable attention should therefore be paid to participation and to how to enhance participation among groups that tend not to participate.

However, a PBD programme may also contribute to increased legitimacy and trust in public institutions, empower citizens (which tends to be the main objectives in PB programmes) and increase participation in local elections. If people see that their proposals, or the proposals they vote on, actually being implemented in their community, they may gain trust in public institutions, which may also increase their propensity to participate in other democratic forums.

Finally, experience from PBD programmes in USA indicates that it is a good idea to start by implementing some of the chosen measures in connection with the PBD process and not wait until sufficient revenues have been collected. Otherwise, the link between the parking revenues and the measures may be weakened.

4. Discussion

In this chapter, I discuss the results in relation to the research questions and position the outcomes in a wider context. This is done by looking at the results using a Social Practice Theory (SPT) approach. In section 4.1, I address the whether there are any current conditions and practices that render a policy shift towards a sustainable mobility paradigm more difficult. In section 4.2, I discuss how people perceive these policies and how they integrate them into their daily lives. I also discuss whether an SPT approach can make some conditions and practices that otherwise risked being neglected more visible to decision makers.

4.1. Current conditions and practices that may render a policy shift more difficult

The three policy measures discussed in Papers I-III have elements in line with the sustainable mobility paradigm proposed by Banister (2008). They are all policies that open up decision making to different stakeholders or even to citizens, which also is in line with the shifts in governance structures discussed by Healey (1998). The government (national, regional or municipal) and its institutions (*e.g.* the Swedish Transport Administration), acknowledge that they do not have all the power instruments, information and knowledge necessary to take all decisions[9]. Thus they need to collaborate with a range of stakeholders in order to promote desirable policies (as with the four-step principle in Paper I and flexible parking requirements in Paper II) or to gain acceptance for desired but politically unpopular policies (as with on-street parking charges in Paper III[10]).

The studied policies are also in line with the idea to shift focus from the physical dimension to the social dimension and from mobility to accessibility. For instance, this shift is visible in the Swedish Transport Administration's statement that it is no longer an 'infrastructure developer' but a 'society developer', which, at least discursively, implies a shift away from the focus on physical infrastructure. A similar shift is discernible in the policy measures studied in the other two papers, *e.g.* in Paper II there is a shift away from the physical parking space to a range of measures to provide accessibility, mobility and livability (where providing physical parking spaces is *one* possible measure to achieve this).

All three papers thus present examples of policies in line with a shift towards what Banister (2008) calls a sustainable mobility paradigm. However, in each case there are conditions and practices that render such a transition more difficult.

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[9]Despite this transition away from a hierarchical governance structure, it is important to bear in mind that the governance in many aspects still follows a hierarchal structure.
[10]Paper II notes that the City of Stockholm received fewer complaints that expected when introducing on-street parking charges in the suburbs, which may indicate that there is acceptance for this measure. However, the opposition party (before the elections in September 2018) stated that it would remove on-street parking charges in Bromma (an affluent suburb in the northwestern parts of Stockholm) if they won the election, which seems to indicate that on-street parking charges is a sensitive political issue.

The studied policies can, in SPT terminology, be seen as an introduction of elements (so-called proto-practices) into planning practice (see section 2.1). The practitioners in the planning activity then interpret, use and make sense of these new elements. At the same time, there are existing (or new) elements that in some cases may be contradictory to a shift towards a sustainable mobility paradigm. For instance in the case of Paper I, a few steps have been taken to facilitate a transition towards a sustainable mobility paradigm – *e.g.* the statement of the Swedish Transport Administration (STA) to be a society developer, the development of the Strategic Choice of Measures methodology and the creation of the STA. At the same time, there are elements of a transition in the opposite direction (*e.g.* the removal of the so-called 'sector responsibility' in 2012 and especially the lack of mandate for the STA to finance information measures). Paper I shows that these contrasting elements may result in:

- Ambiguous signals to stakeholders
- Frustration among STA officials
- Lack of clarity on the mandate
- A risk of certain measures 'falling between the cracks'.

The ambiguous signals derive from the statement that the STA should first consider measures that reduce the need to travel and measures that contribute to more efficient use of existing infrastructure (step 1 and step 2 measures), before investing in new infrastructure. At the same time, the STA does not have the mandate to finance those measures (or at least it is interpreted this way at the national level). This causes some actors to doubt the STA's intentions (do they only want to transfer responsibility to other actors?). At the same time, it is frustrating for STA officials not to be able to finance the measures they deem the most efficient, and regional officials at the STA perceive the financial mandate to be unclear. To them it is unclear whether the STA can, or cannot, finance step 1 and step 2 measures, whilst officials at the central level perceive the mandate to be clear. In some instances, the regional planning authorities have included step 1 and step 2 measures in their regional transport plans (financed with funds by the STA), and the central administration at the STA has argued that this is not allowed and that refunding may be necessary (STA, 2018). Thus there seems to be a clash between the interpretations of the STA's financial mandate at central level and the planning practices at regional level, which is causing frustration and ambiguity. It is not only a case of unclear information from the central level, but also that the directives do not fit into the regional planning practices.

The same tendencies can be perceived in the other papers. For instance, in the guidelines to the City of Stockholm's new parking requirements (Stockholm, 2015), the importance of a dialogue between developers and the municipality is highlighted by strategic planners. However, officials working with the building permit want to have clear guidelines, as a dialogue with developers takes time and would increase their workload. Furthermore, there are expectancies about the role of the municipality and the developer regarding the need to provide on-site parking spaces for each development, to provide the possibility to unbundle parking from the development, regarding consequences for residents *etc*. Parking requirements have been framed within what Banister (2008) calls a 'conventional approach', where developers are required to provide a certain amount of physical parking

spaces. Flexible parking requirements are intended to reframe the question, but it is still framed as a need for a certain number of parking spaces. Another way to frame the question would be as a mobility or accessibility requirement, where car parking spaces are one mobility service among many.

Using an SPT approach and viewing the planning activity as a professional practice would make it possible to gain insights from new perspectives and thus also deepen the analysis. The discussions in the previous parts of this Chapter would mainly be labelled 'meaning' SPT terminology. An SPT approach would broaden the mapping to include 'skills' needed in the planning process, as well as 'material'. As Litman (2013) argues, a new planning paradigm requires new appraisal and planning methods (as the focus is shifted away from vehicle flows to accessibility and livability), and new planning competences may be needed (*e.g.* a greater focus on processes). Social Practice Theory provides an analytical tool to map these elements. Finally, an SPT approach can draw attention to bundled planning practices (*e.g.* municipal planning), as it decentres the individual planner and directs the focus to a range of elements in a planning practice, as well as their relations to neighbouring practices. This holistic mapping can help identify conflicting elements and practices, which may help explain difficulties in changing planning paradigms.

These insights are line with findings in other studies (Watson, 2012; Cass and Faulconbridge, 2016; Isaksson, 2017). For instance, Isaksson *et al.* (2017:56), analyse four different policies in Stockholm in relation to Banister's sustainable mobility paradigm, and argue that they "*[...] have seen that both the city plan and the regional development plan contain elements of layering and drift, which means that ideas of sustainable mobility exist side by side with a more conventional approach to transport and land use development"*. They also argue that the regional development plan, the urban mobility strategy and the city plan indicate a slow shift from a 'conventional planning paradigm' towards a 'sustainable mobility paradigm', but that there is a parallel planning process where the STA is planning for new urban motorways such as the Stockholm bypass, which, according to Isaksson *et al.* (2017) steers towards conventional planning. The research in Paper I is in accordance with these conclusions and can give some insights into the difficulties for the STA to shift from a 'conventional planning' to a 'sustainable mobility paradigm'.

These results indicate that it is difficult to change existing planning practices. A planning practice is constituted by several interconnected elements (for instance, different skills needed to plan, different analytical tools, taken-for-granted assumptions and roles of different actors, formal and informal rules and norms). While some of these elements have changed, some remain and others have changed in the opposite direction (favouring conventional planning). Furthermore, new elements only influence a planning practice insofar as they are used and integrated by practitioners. This leads to the conclusion that: 1) many elements must be coordinated and changed in order to facilitate a transition towards a new paradigm and 2) a planning practice changes only by the practice of practitioners and the new planning practice can thus take unexpected turns.

4.2. How people perceive these policies and how they integrate them into their daily lives

The second research question formulated in this thesis concerned how people perceive policies in line with 'the sustainable mobility paradigm' and how they use and integrate them into their daily lives. The discussion below draws on the results from Paper II, where interviews and surveys were conducted with future residents in two new developments. The new policy shifts the focus from car parking spaces (physical infrastructure) to mobility, accessibility and livability. According to informal discussions in Paper II, planners at the City of Stockholm are afraid that the new guidelines do not require enough car parking spaces and that people will park on the streets instead. In this section I discuss the residents' views, perceptions and activity patterns and, using an SPT approach, seek to draw some general conclusions regarding their perceptions of these kinds of policies.

I first discuss bundles of practices, then different elements of specific practices and finally practical and discursive consciousness. The analysis is principally focused on the practice of car ownership.

4.2.1 Bundles of practices
Car ownership was found to be tightly connected to the informants' activity pattern. Some of the future residents have organised their lives in ways where they do not (or rarely) need a car. They commute to work by public transport or by bike, shop at the local grocery stores or in shops near public transport stations on their way home and exercise at gyms near home. If they buy bulky things they order home delivery. Their daily activities (spatial and temporal) are organised in such a way that they do not need a car. Some other informants need a car for daily activities (*e.g.* for commuting), while yet others need a car for a number of more or less specific activities (*e.g.* weekly shopping, buying bulky things, visiting family and friends *etc.*). Furthermore, these activity patterns are dynamic and constantly changing, for instance due to changes in the individual's life cycle (*e.g.* as people retire or have children). These changes in car ownership over different life cycles may be due to changes in activity patterns and to expectancies linked to different life cycle stages.

Both developments studied in Paper II are located in close proximity to good public transport supply and near a good supply of local service. Many future residents live in considerably less well-served areas in terms of public transport and urban amenities today, and the locations of the new developments may encourage them to manage their 'systems of practices' without access to a private car.

4.2.2 Elements of a practice
The analysis has so far been fairly similar to an activity-based approach. However, a particular spatial and temporal organisation of activities does not necessary mean that the new residents will adhere to a specific practice (*e.g.* defect from car ownership), so the analysis needs to be taken one step further.

Mobility services can be seen as elements (or proto-practices) that are introduced in these complex 'systems of practices' (Watson, 2012). Some future residents are members of 'systems of practices' where these services can facilitate activities in their lives (for instance by giving them access to a vehicle – a car, a functioning bike, a cargo bike, a broader range of mobility opportunities). According to the interviews, it is not merely the people without

access to a private car (Groups 1 and 2) that appreciate the mobility services. For instance, some of the informants in Groups 4 and 5 mentioned that it is positive not to be dependent on the car, others that it is positive to have access to a second car. One person who does not plan to use the services is still positive to the services, since according to her car traffic has to decrease. Several informants viewed this as the way to plan in the future.

The car is associated with a set of narratives that frame what people think and imagine possible. These narratives (or meanings) are collectively shared and not merely dependent on specific individuals' values. Some of the narratives that were identified in the interviews in Paper II are:

- **Need for flexibility and freedom**: Some informants associated the car with flexibility and freedom. They are accustomed to the flexibility provided by car ownership and are worried that they will not have the same freedom without the car:

  "No, the only thing I feel is that everyone wants it to be car-free. But for elderly people this only works if there are alternatives. Otherwise we prefer, you know we are used to this freedom. Like, now I want to go there. Now I want to do that". (Informant 15)"

  However, the private car is not merely associated with freedom and flexibility. For instance, one of the informants, who owns a car, is positive to the mobility services as they reduce the dependency on the car and offer a range of mobility options. Many of the informants are worried about the availability of mobility services (especially the car club) and some are also worried that people will not take care of the car club vehicles.

- **A desire not to be dependent on others**: Some of the informants are dependent on other people with access to a car for certain trips, and not having to be dependent on others is a reason for using the car, or wanting to use a car. For instance, one of the informants explained that he drives to the park-and-ride facility because he does not want to be dependent on other family members who drive to the same facility.

- **Mobility services are perceived as modern and the way to plan in the future**: Several informants said that this is the way to plan in the future and that mobility services are 'modern'. One of the informants believes that these services may increase the value of the apartments in the future. Yet another stated that it is necessary to work in this way as car traffic has to decrease (even though she cannot manage without a car).

It is important to highlight that many of the future residents do not yet have experience of using the mobility services. Only 5% of the future residents in On Track (3 people) and none in Blicken are members of a car club (according to the surveys). The informants thus seem to be dependent on other people's experiences (friends, colleagues *etc*.) to make up their minds about these services. For instance, one of the informants who considered

selling her car and joining the car club said that she did not know anyone with a positive experience of a car club and she was therefore hesitant. Another informant, in the same situation, had a friend who sold his car and joined a car club and was very positive and had reduced his mobility costs. These narratives about different mobility services circulate and are, at least to a certain extent, collectively constructed.

Mobility services are not merely surrounded by narratives or 'meanings'. These services also require a certain amount of competences and materials. For instance, in the case of a car club, the residents need to learn how to plan and book the mobility services in advance, and get into the habit of doing so. The interviews indicated that some of the informants feel unsure about the concept of a car club, which could be due to their lack of experience of a car club (and subsequently their lack of associated competences). Material is also needed, such as car parking spaces (both around the residences and at other places), vehicles, mobility services, public transport, roads *etc*. The interviews indicated, for instance, that the informants tend to not take the car to the city centre due to congestion, congestion charges and the difficulty in finding a parking space. The interviews also indicated that a considerable number of the future residents do not have access to a functioning bike, although many have a broken bike.

According to Social Practice Theory, the elements introduced in the new developments (*e.g.* a car club, a bike club, visible and accessible bicycle parking spaces, few and more expensive parking spaces) are all material elements introduced in a 'car practice'. For people to deflect from this practice and join other travel practices, the change does not merely depend on these material elements, but also on the collectively shared 'meanings'(discussed above) and 'competences'. These 'meanings' are, according to SPT, dynamic and constantly changing as people act in new ways. As many of the mobility services offered are currently marginal practices (with few members), SPT suggests that residents may need time to try the services and integrate them into their daily lives. As more members are recruited to these practices, the collectively shared meanings around them are likely to change and more people will acquire the necessary competences. This would imply that it may take some time for the practice to develop and recruit new members. Whether it recruits new members is also dependent upon bundled practices.

4.2.3 Action and knowledge
Social Practice Theory indicates that people tend to incorporate routines into their daily lives, and these routines tend to be conducted without conscious thought. Other researchers than those applying SPT discuss this, using slightly different terms. Anthony Giddens (*cit.* Kennedy *et al.*, 2015) argues that there is an interplay between practical and discursive consciousness. By discussing and reflecting on routines it is possible for people to change them and establish new routines. Schwanen *et al.* (2012) argue that habits are not merely cognitive, but also embodied. According to these researchers, information may be a component in the formation of knowledge, which may affect the processes of changing travel habits and car ownership. The interviews in this thesis indicated that, despite considerable information being provided about the mobility services available to the buyers of the apartments, some of them were not aware of the range of services offered and some had misunderstood the offer. Furthermore, many perceived the information not to be sufficiently concrete. For instance, at the time of interview the prospective residents had

received information that there will be a car club, but not regarding how to book it *etc.* For some of the informants, the information provided was not enough to take a decision on whether to keep their car or not, and they wanted to see how the mobility services worked in practice before taking such a decision. Information may be an important component of flexible parking requirements, but it is merely one element of a practice and providing information may not be enough to change behaviours. Practical experience of the new services is something that should not be neglected. As many of the buyers of apartments had little personal experience of the mobility services offered, it may be a good idea to give new residents the opportunity to test the mobility services. The developments studied have worked with these aspects in different ways. In one of the developments, On Track, information about the mobility services is provided through an information folder, at information events *etc.*, and residents who do not rent or queue for a parking space receive a free public transport card for a year. In the other development, Blicken, personal travel planning is offered, as well as trials of rental cars and taxis.

To conclude, the mobility services provided in the new developments can be interpreted as *material* elements in a travel practice, information and *skills*. According to Social Practice Theory, attention should also be paid to other elements such as '*meaning*', as well as to bundled practices. As elements are dynamic and constantly produced and reproduced by participants in a practice, the narratives surrounding different practices are likely to change as more people participate, as are the competences needed to use these services. As many of the mobility services are quite marginal practices at the moment, this implies that it may take some time for the practices to recruit members and spread. Mobility practices are also connected to bundled practices, and how these bundled practices develop will also affect the mobility practice of residents.

5. Concluding discussion

In this chapter, I connect the discussion about the environmental and social challenges identified in the introduction with the research questions and findings in this thesis. The purpose is to set the research questions in a wider debate.

Transport enables people to access different activities, but also gives rise to environmental problems and occupies much space. Banister (2008) and Litman (2013) argue that a change in planning paradigm is needed to ensure a transition towards sustainable mobility. In order to deal with great environmental challenges such as climate change and land use, it is argued that a systemic change in planning approach is needed. According to Banister (2008) and Litman (2013), it is necessary to challenge some core assumptions of travel planning and develop a new planning paradigm – a sustainable mobility paradigm. In this thesis, I studied what this policy shift might mean in the Swedish national and municipal transport, housing and parking planning context, and whether and how the theoretical framework of Social Practice Theory might be an appropriate approach in working for such a paradigm shift.

Three policies were analysed in line with Banister's sustainable mobility paradigm and certain obstacles were identified, *e.g.* that there are a range of elements in planning practices that render a transition towards a 'sustainable mobility paradigm' more difficult. As Isaksson *et al.* (2017) highlight, some elements in current planning push towards a 'sustainable mobility paradigm' while other push in the other direction. Other researchers argue that the individualistic planning paradigm (focusing on individual choices in terms of economics and psychology) may neglect necessary structural changes (Watson, 2012; Marsden *et al.*, 2014; Cass and Faulconbridge, 2016). Cass and Faulconbridge (2016) argue that mobility implications of 'neighbouring practices' should be taken into account when developing policy measures.[11]

Using a Social Practice Theory approach may render links between elements and bundled practices more visible, and may thus identify previously neglected policy opportunities. A recent article by Marsden and Reardon (2017) indicates that there still is a predominance of a technical-rational planning paradigm in transportation research and a lack of contextual and qualitative research. In an analysis of 100 research papers, they concluded that 79% were quantitative and that "[…] *fewer than 10 % of papers engaged with debates about policy aims* […]" (Marsden and Reardon, 2017:248).

Papers I-III in this thesis follow a similar form of analysis. For instance, in the case in Paper I, there are some institutional changes that would facilitate a transition towards a more sustainable mobility paradigm (*e.g.* the Strategic Choice of Method methodology), while other elements render the transition more difficult (*e.g.* the Swedish Transport Administration's financial mandate). As Paper I suggests, a solution to this would be to change the Swedish Transport Administration's financial mandate from merely financing

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[11]In their analysis of commuting, they use patient choice of medical treatment site as an example of a policy which can increase transportation needs.

measures at state infrastructure to financing measures that contribute to the transport political goal. With this approach, the Swedish Transport Administration would have the mandate to also finance step 1 and 2 measures, and this could contribute to a more sustainable transport sector. However, a range of other elements might also have to change, such as the routines to handle step 1 and 2 measures after a Strategic Choice of Method study (Fernström *et al.*, 2016), and the expectancies on the Swedish Transport Administration as an institution financing new infrastructure (Odhage, 2012).

I argue that a Social Practice Theory approach could be an appropriate theoretical framework in working to achieve a sustainable mobility paradigm and could contribute to a reframing of the purpose of transport planning where people are in the centre. Social Practice Theory decentres the individual from the decision making and highlights the socially structured and shared practices, which, at least to a certain extent, opens up the scope of possible actions. In order to reach existing sustainability targets, structural change is needed. Social Practice Theory as a theoretical framework can help researchers and policymakers work towards such change.

In future research, I intend to conduct further interviews and surveys of people who have moved into apartments with flexible parking requirements. In that work, I will continue and deepen the analysis presented in this thesis.

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