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Contested values in bike-sharing mobilities – A case study from Sweden

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ABSTRACT

The aim of this paper is to analyse the type of mobilities and subjects that are being promoted and constituted through bike-sharing systems. This is done through an analysis of the bike-sharing system in the city of Lund in Sweden. The analysis utilises Bacchi's *What is the Problem Represented to be?* framework and develops it through adding a spatial perspective. Departing from a critical velomobilities perspective, we argue that urban transport policies cannot merely be regarded as one specific and delimited reaction to well-defined policy problems. Instead, the ways that BSSs are, described, motivated – but also spatially organised – constitute which mobilities are produced. The analysis is based in an analysis of relevant policy documents, maps and observations. It is concluded that bike sharing is not seen as cycling and is rarely linked to cycling as such, but rather is seen as part of the public transport system. Further, it is concluded that the motivation behind the location of the stations is to facilitate the flow of workers to public transport, and promote attractiveness and tourism, thus constituting a strong belief in a win-win situation between sustainability and growth. Here prioritisation between different values, and the possible tensions between different social and environmental dimensions of sustainability is down-played.

1. Introduction

Urban planning processes have traditionally supported and facilitated the development of automobility, often based on the ambition to 'predict and provide' for an urban transport system centred around the car (Brown et al., 2009; Koglin and Rye, 2014; Merki, 2008; Paterson, 2007). Today, these tendencies are being challenged – albeit to varying degrees – by emerging pressure on policy makers and politicians to work for a shift towards more sustainable forms of transport (Banister, 2003; Banister, 2005 cf. Jones and Lucas, 2012). To this end, policies associated with the ambition to replace car journeys with bicycles or different forms of shared mobility solutions are increasingly attractive in the Nordic countries.

Policy studies in the realm of transport often isolate and focus on the relative impact of specific measures on the transport system. Beyond these approaches, an increasing body of research is attempting to relate transport planning and policy making to broader social and spatial relations and how they affect, and are affected by, mobilities (cf. Urry 2007, Næss, 2012, 2015). This *mobilities* perspective highlights the importance of mobility to social life, including peoples' daily lives (see e.g. Freudendal-Pedersen & Kesselring 2016; Sheller and Urry, 2006; Cresswell, 2006, 2010; Jensen, 2011; Freudendal-Pedersen, 2009; Kesselring, 2006). In this context the field of *critical vélomobilities* "offers an alternative style of sociologically-informed research that illuminates cycling […] as an historically and geographically situated social practice" (Scott, 2020). Here cycling becomes more than merely an individual choice of mode of transport, instead it is seen as part of a broader social production of space and social relations through transport policies, and through the creation and valuation of mobilities. This also means that cycling can be seen both as a product and a producer of unequal power relations (Balkmar, 2018; Balkmar and Summerton, 2017). It is in this theoretical context that this paper analyses the development of a particular policy – bike-sharing systems (BSSs).

We approach BSSs as a form of municipal transport policy that urban policy makers explicitly describe as aiming to promote sustainability. Our point of departure is that policy making, such as the construction of sustainable transport policies, cannot be reduced to mere reaction to a pre-determined set of neatly formulated policy problems – instead policies are seen as being continuously constructed and negotiated, and are imbued with both intended and unintended spatial and social

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consequences (Mukhtar-Landgren and Paulsson, 2020; Ernste et al., 2012). Yet it is necessary for scholars to "provide oneself with a grid of analysis which makes possible an analytic of relations of power" (Foucault, 1980: 199). Our analysis utilised Bacchi's (2010) *What is the Problem Represented to be?* (WPR) framework by posing the question to the material. Bacchi has developed her framework in a Foucauldian tradition, an approach that has been gaining influence in mobilities research (see e.g., Doughty and Murray, 2016; Manderscheid et al., 2014; Stehlin, 2014). Common points of departure include a relational ontology and the emphasis on power as productivity (cf. Manderscheid et al., 2014). Here power is not seen as to be tied to individual actors or formal decision-making bodies, instead policy making is a sheer formalisation of broader power-relations, and as such formal institutions can be said to embody power (Foucault, 1980: 121; Foucault, 1990; Flyvbjerg, 1992: 108ff). When the productivity of power is placed centre-stage emphasis is placed on which social (and in this case also spatial) relations that are created. This also includes how individuals or citizens are being created. Citizens are seen as more than simple "participants in politics", instead they are shaped through social and political practices, including formal regulations and policies (Cruikshank, 1999: 69). In the words of Manderscheid et al., "labelling something as mobile or movement is not only a performative act that co-constitutes what it claims to portray but also a technique of power for making that something knowable and governable" (Manderscheid et al., 2014: 481). Thus, the way in which BSSs are described, and made "knowable and governable", informs us about the problems that are being addressed, but also which subjects (i.e., which types of mobile persons such as commuters, tourists, or children) are being placed centre-stage and therefore created through the schemes.

Bacchi's policy analysis emphasises discourses, and how they are produced through documents, speech acts and legislation (2010). Yet studies of mobilities take both the discursive and the *spatial* foundation into consideration (cf. Manderscheid 2013; Doughty and Murray, 2016). We argue that beyond discourses the spatial organisation, including the location of the BSS docking stations indicates what problems and which categories of urbanites shared bicycles are addressing. Thus, our argument is that the ways in which BSSs are both *discursively described* and *spatially organised* informs us about the problems that urban policy makers are trying to solve.

The overall aim of this paper was to analyse the type of mobilities and subjects that are being promoted and constituted through BSSs. The questions that guide this paper are:

- What is the problem represented to be in (i) the description and (ii) the spatial organisation of BSS in Lund?
- What kind of urban citizens or subjects are imagined/created through these mobility services?

The paper is organised as follows. In the next section we present a short review of previous research on BSSs and situate our analysis in relation to this literature. Thereafter, we develop our analytical approach, which is further described in the methods section. This section also situates the case and outlines the empirical material. We then present our analysis, which was structured around the four questions in Bacchi's framework, before summarising and concluding our analysis.

2. Previous research and situating the study

2.1. What do we know about BSSs?

BSSs, or the shared use of a bicycle fleet, were introduced in Europe in the mid-1960s and subsequently spread to Asia (primarily China), North and South America, and Australia, with a sharp increase over the last 15 years (Parkes et al., 2013; Fishman et al., 2013, 2012; Shaheen et al., 2010). According to the *Bike-Sharing World Map*,0F[1] there are 813 BSSs in operation worldwide and 221 are being planned or are under construction.

BSSs are often seen as part of the shared economy. A growing body of literature is analysing the introduction of new and innovative transport solutions, including different forms of shared mobility services (e.g. Finger and Audouin, 2018; Karlsson et al., 2020; Docherty et al., 2018; Fagnant and Kockelman, 2015). Shared mobility has been defined as "the short-term access to shared vehicles according to the user's needs and convenience, instead of requiring vehicle ownership" (Machado et al., 2018, p. 2, quoting Shaheen et al., 2015). In a broader perspective, the shared economy is currently being discussed in a large and diverse body of literature (for reviews, see Curtis and Lehner, 2019; Acquier et al., 2017, Ganapati and Reddick, 2018, Frenken and Schor, 2017). Even though some of these shared solutions and schemes have been in existence for a long time (such as the incidence of both bicycle pools and carpools), they are currently being transformed in light of the developing platform economy and information and communication technology (ICT) (Olsbury and Mukhtar-Landgren, 2020). As such, some common traits can be discerned in the shared economy, including the emphasis on access and under-utilised goods, the dependency on platforms, the importance of ICT, and the priority of usage over ownership (Curtis and Lehner, 2019). In this context, BSSs have been described as a form of public transport that is open to the public, where users can access a bicycle on an as-needed basis, thus enabling short-term rental between docking stations (Fishman et al., 2013). The so-called third generation BSSs are currently the most common systems (and are also included in this study). They not only comprise distinguishable bicycles and docking stations, but also user interface technology and platforms for access and usage (Shaheen et al., 2010: 7; Frade and Ribeiro, 2015: 217). The bicycles have unattended pickup and drop-off locations and are often placed in such a way as to enable coordination with other transport modes in order to function as a part of multimodal connectivity (Parkes et al., 2013; Frade and Ribeiro, 2015: 217; Conrow et al., 2018).

Shaheen et al. (2010) summarise the expected benefits of bike sharing as flexibility, emission reduction, health, and economy on an individual level, as well as reduced congestion and fuel use (2010: 2). One important aspect in this regard is the underlying assumption that a proportion of users are replacing cars with BSSs. Although considerations regarding these potential benefits are inconclusive, they indicate that the benefits should not be exaggerated because "mode substitution from cars to bike share is low" (Fishman et al., 2013: 154; cf. Fishman et al., 2014: 18). Instead, there is a concern that BSSs are merely substitutes for other sustainable systems. However, this aspect is contested. One important aspect regarding usage is the placement of docking stations (Frade and Ribeiro, 2015, cf. Conrow et al., 2018). In the literature there are attempts to classify stations based on how they are used, such as differentiating between "Go-From stations, Go-To stations and Self-Sustainable stations" (O'Neill, P., Caulfield, B., 2012 in Jiménez et al., 2016: 228) to take just one example. A number of studies indicate that "the integration of cycling and public transit has been shown to

[1] The *Bike-sharing World Map* is provided by MetroBike, LLC based in Washington, D.C., USA. It shows BSSs all over the world and provides some basic information about them. See: www.bikesharingworld.com, accessed, 2020-01-27.

strengthen the benefits of both modes" (Fishman et al., 2013: 156), and as such there is a potential to aid the so-called last mile problem and thus to fill gaps in public transport options (Conrow et al., 2018). Yet another aspect that complicates the issue from a sustainability perspective is that many BSSs rely on motorised trucks or vans to re-distribute bicycles between docking stations during the day. A study of six cities that compared the reduction in car use as a consequence of BSSs – and that included these fleet-distribution operators – concluded that there were 344,446 km *more* travel by motor vehicle support services – i.e. motor vehicle support is much greater than the vehicle kilometres travelled that are avoided (Fishman et al., 2014: 18).

Previous studies of who/which groups use BSSs is of particular interest for this study. Members of BSSs have been found to differ from the general population, as stated in a review study by Fishman et al., 2013. For example, a study from Washington, D.C., in 2012 found that users were characterised by "significantly higher employment rates and education levels, lower average age, and more likely to be male. Members were also more likely to be Caucasian and living within the inner urban area" (Fishman et al., 2013: 158). An interesting aspect in this regard is the usage of BSSs in deprived areas, where the lack of docking stations may be of greater explanatory value than disinterest in the scheme (Fishman et al., 2013: 158). As such, the calls for distributing BSSs more equitably has been raised and analysed (see e.g. Conrow et al., 2018). This also relates to broader debates about the importance of fair transport and mobility systems. Here previous research has shown that transport or mobility materialities not only contribute to unfair transport systems, but also to fewer sustainable opportunities for certain groups in cities (Martens, 2016; Martens and Lucas, 2018; Ryan, 2019; Koglin, 2017).

Taken together, previous research has analysed the users, benefits, and relative success of various BSSs. In this article, we adopt a different approach. Like Spinney and Lin (2018), we use a critical perspective on bike sharing with a point of departure in mobilities research.

2.2. Contextualising the study

This article relates to literature on the role of cycling in regard to the mobility norm, as mentioned above in the discussion on critical velomobilities. Beyond well-referenced research by Beckmann (2001) and Urry (2004) on how the system of automobility permeates present-day society and extends much further than just infrastructure for cars and into the everyday culture of mobility, a growing body of literature is investigating the marginalisation of cycling in transport planning (Balkmar, 2020; Emanuel, 2015; Freudendal-Pedersen, 2020; Cox, 2020; Leyendecker, 2020; Feddes et al., 2020; Koglin, 2020) and the contestation between cycling and motorised transport (see e.g. Henderson and Gulsrut, 2019; Koglin, 2018). In a broader sense, this is also expressed in the critique against the *individualisation* of solutions related to sustainability challenges (Paterson and Stripple, 2010), where sustainability is reduced to individuals making either the right 'responsible' or wrong 'irresponsible' transport choice (Rehnlund, 2019: 194). Here Rehnlund (2019) has used Bacchi's framework to highlight how transport policies in Stockholm promote the "construction of the subject as a commuting worker" who is a growth-abiding citizen who does not break the status quo (2019, p. 196). Growth is here placed before sustainability in trying to break the paradox between them, and there is a reinforcement of the individualisation of sustainability problems and solutions.

We know from previous research that sustainability measures have problems escaping, or moving beyond, a growth-centred approach to transport (Rehnlund 2019; Stehlin et al., 2020; Essebo and Baeten, 2012). Instead, "cities are caught between the competing goals of growth and sustainability", in which the first tends to be prioritised (Vogel, 2016, p. 361). BSSs can be seen as an example of the perceived "win-win politics" of sustainability and growth, and as such the discussions in this paper are in continuation with previous ambitions to highlight – rather than ignore – potential contradictions between growth approaches and sustainability goals (Vogel, 2016, p. 363 cf. Essebo and Baeten, 2012).

Summing up, we build on previous studies on the placement of stations in the spatial analysis, yet examine these through the broader analysis of mobilities and mobility policies, as described above. As such, the contribution of this study is to continue previous attempts to critically analyse and problematise the inherent sustainability of BSSs by emphasising power relations and inequalities. In this ambition, we also take the accessibility to the systems into consideration.

3. Methodology and material

As argued above, the ways that BSSs are spatially organised, described, and motivated constitute which mobilities are being made. For example, the placement of docking stations close to tourist destinations, with descriptions of the attractive and vibrant city, involves a very different problem representation than if the stations were to primarily be placed in transport-poor areas in conjunction with descriptions of social cohesion. These processes create and enact different types of citizens or subjects – the commuter, the cyclist, the car driver – who are enabled through these power relations. From this it follows that any policy analysis needs to go beyond analysing just the impacts or the actors. Instead, processes of power, planning, and policy should focus on the productive aspects of power (cf. Flyvbjerg, 1992; Foucault, 1990).

Bacchi's framework has been developed with the purpose of problematising policy and policy analysis by addressing questions not only about what is said, but also the silences. Problem representations should not necessarily be seen as a deliberate form of representation. Instead, the emphasis is on opening up for the possibility of analysing "unexamined assumptions and deep-seated conceptual logics […]" (Bacchi, 2012: 22). For Bacchi, this is "accomplished through a set of six questions" that she has developed (2012, p. 12). In this text we address all six questions, and four of them (highlighted below) will be addressed one at a time while the final two underly the analysis in general (The text below by Bacchi, 2012, p. 21).

Q1 "What is the 'problem' […] represented to be a specific policy or policy proposal? [here in the description and spatial organisation of BCS in Lund]?" Here, we analyse the empirical material with the ambition of "clarifying the implicit problem representation". We analyse both the specific policy documents and broader zoning plans from the municipality in search of problem representations. We also conduct a spatial analysis of where the docking stations have been placed.

Q2 "What presuppositions or assumptions underpin this representation of the 'problem'?" Here, we "reflect on the underlying premises in this representation" and try to tease out assumptions about mobility and urban space.

Q3 "What is left unproblematic in this problem representation? Where are the silences? Can the 'problem' be thought about differently?" Here, we analyse possible silences in the material using previous knowledge and research on urban mobility and local transport.

Q4 "What effects are produced by this representation of the 'problem'?" Here, we primarily assess what subjects or subject positions are being produced by the identified problem representations. This is conducted throughout the analysis.

Q5 "How has this representation of the 'problem' come about?"

Q6 How/where has this representation of the 'problem' been produced, disseminated and defended? How has it been (or could it be) questioned, disrupted and replaced?"

The empirical analysis of the material is structured in accordance with the first three questions, with the question on subjects (Q4) integrated throughout. The two final questions, Q5 and Q6 are addressed throughout the text. How the problems have come about is discussed in terms of the mobility norms that permeate Western cities and is primarily based in previous research. The question of how these representations come about considers the production of materialities through the placement of BSSs as well as through information available on

websites, etc.

In a broader perspective, this type of qualitative research is an approach to developing a deep understanding of certain issues that might be very complex. The emphasis in qualitative research is on the interpretation and understanding of the empirical material rather than on generalising the results (cf. Flyvbjerg, 2001). The details of the analysis will be described below after the presentation of the empirical material.

The analysis was performed in the following way:

- We first conducted a spatial analysis of maps of the BSS in Lund, including an analysis of the different maps and observations at several stations. In the observations, we noted the proximity to housing/type of housing, public services, tourist destinations, workplaces, public transport routes, and overall accessibility for different groups.
- Second, all documents and the transcription of the interview were read carefully in order to get an understanding of the policy context and the role bike sharing played/plays in the policies and planning processes.
- Third, we searched the documents and the transcribed interview material for information on bike sharing and keywords based on Bacchi's questions. As such, we searched for both problematisations and subject descriptions. Here a problem was that a large bulk of the material did not contain any such information.
- Fourth, we assessed the coded material together with the analysis of the maps and observations and conducted a more detailed analysis. This was also related to literature in the specific field, e.g. on spatial inequalities.

3.1. Situating the case and empirical material

The Swedish administrative system comprises three levels – the national level (the state), the regional level (counties), and the local level (municipalities). The state and its government manage land-use planning through legislation and policy making, for example, through the Planning and Building Act and the Environmental Code. In Sweden, according to the Planning and Building Act, the municipalities have a so-called planning monopoly and can therefore control the location of buildings, public advertisements, thus decide over the whole planning process and outcomes, through detailed plans and design. Furthermore, it is mandatory for every municipality in Sweden to have a zoning plan or a master plan. In either the zoning or master plan, which are not legally binding, the municipality can state its ambitions for future urban development, transport infrastructure, and so on. This is the most strategic document the municipality can develop. Also, Swedish municipalities can develop other strategies such as sustainable urban mobility plans, bicycle strategies, environmental strategies, and similar strategies and plans, that can help guide the planning processes and steer planning in certain directions (Larsson, 2006; Persson, 2013; Koglin and Pettersson, 2017).

BSSs have been established in Swedish cities for several years. One of the major bike-sharing companies in Sweden is JCDecaux, which is also active on the global market. The company offers BSSs in several cities in Sweden, including the university city of Lund. It establishes bike-sharing stations in the city, and users have to go to one of the stations to use the BSS. Once the user has finished using the bike, it must be docked at one of the stations again. The bikes are docked at stations and are often distributed by JCDecaux using transporter vehicles such as small trucks. These trucks transport bikes from stations that contain many bikes to stations that only have a few bikes (JCDecaux, 2019). As part of operating the system, JCDecaux handles public advertising in Lund. This then finances the BSS in the city. In the contract between the municipality and JCDecaux, public advertising is left to the company. The focus in this paper is on the BSS in the city of Lund in the Scania region of southern Sweden. Lund is famous for being a cycling city and for having a quite a high share of cycling in their mode share. The BSS in Lund is called *Lundahoj* and is run by JCDecaux. JCDecaux is responsible for the internet presentation of the system and the implementation and maintenance of the same.

The empirical material comprised the following policy documents and zoning plans for Lund:

- Zoning plan
- Sustainable Urban Mobility Plan (SUMP)
- Bicycle Strategy
- Reports by the city about their bicycle accounts
- Bicycle accounts
- Reports about the city's bicycle accounts
- Map of the bike sharing stations
- Map of the public transport network
- Map of Lund showing areas with major employers, low-income areas, and student housing

Overall, eight policy/planning documents were analysed for this article. However, from all the documents analysed, only the zoning plan, the SUMP, and the bicycle strategy mentioned bike sharing. The term "bike sharing" or similar terms, like "rental bikes", etc., were not part of the other documents.

Moreover, we also conducted an interview with a planner in order to develop a better understanding of why the BSS was implemented. The interview was not a core part of the analysis but had the purpose of understanding the stated motivation beyond the motivations that were shown through the choice of arrangement of the BSS. Thus, the interview was not part of the original research design but was carried out since very little about bike sharing was mentioned in the documents. Therefore, we decided to add data from an interview in order to deepen the knowledge about bike sharing in Lund. An interview guide was developed with general, open-ended questions, and the interview lasted for around 23 min and was later transcribed.

Finally, in addition to local material, the regional cycling strategy of the region of Scania and the Swedish national cycling strategy were analysed. Unfortunately, the regional cycling strategy does not mention bike sharing at all and the national strategy only mentions bike sharing by explaining that bike sharing is part of the cycling infrastructure (Region of Scania, 2017; Regeringskansliet, 2017).

4. Analysis

4.1. What is the problem represented to be in the description and spatial organisation of BSS in Lund?

Two main problematisations were identified in the analysis. These will be elaborated below.

1. To increase the attractiveness and accessibility of public transport.
2. To create an attractive transport solution for tourists or other people visiting the city.

In *Lund's bicycle plan 2018–2021* (City of Lund, 2018), the following is written about bike sharing:

… in order to make longer distances more attractive with public transport users, a bike sharing system could be used in Lund … (City of Lund, 2018: 1, author's own translation).

In the above quote, bike sharing in Lund is described as something that supports the public transport system. In terms *of problematisations,* this means that the *first problem* the bike-sharing system is solving is increasing the attractiveness and accessibility of public transport, something is also highlighted in previous research (which have shown that docking stations are often placed so that riders can use bikes as a part of a multimodal trip). The planner in Lund responded to the

question regarding what problem the BSS should solve as follows:

You see, many people commute to Lund using public transport. … and Skånetrafiken [the regional public transport provider] would like to provide more buses, which is difficult. So, I think the main problem that should be solved with bike sharing is to lighten the burden on the public transport system a bit. (Interview Planner – City of Lund 2019, author's own translation).

Furthermore, *Lund's bicycle plan 2018–2021* also mentions bike sharing in terms of how the city is monitoring the number of bicycle trips made with the city's BSS (City of Lund, 2018). Thus far, very little information has been provided about bike sharing in the documents of the city of Lund. However, in Lund's sustainable urban mobility plan "LundaMaTs", it is mentioned that:

Cities also need to manage the flow of regional commuters. It is primarily about efficient public transport solutions with the whole trip in focus. However, bike-sharing systems are also useful tools. (City of Lund, 2014: 12, author's own translation).

Summing up, even though the strategy documents from Lund say very little or nothing about the city's BSS, the strategies that are describing the aim of BSSs to deal with increasing the attractiveness of public transport.

The *second problematisation* is related to *tourists and visitors to the city* and originated from the interview with the planner in Lund. Besides commuters, tourists were also mentioned in the interview, indicating the ambition that BSS *"was also about tourists so that they would be able to borrow a bike and cycle around town"* (Interview Planner – City of Lund 2019). In this regard, BSS may be interpreted as a way to make Lund a more attractive city.

Although very little is said regarding the subjects of the policies in any of the documents analysed, the two subjects of "commuters" and "tourists" are the most common. The emphasis on these subject positions is also evident in the interview:

Then it was decided to stretch the bike-sharing docking station along the north-eastern section, along the tramway one could say, as a supplement to public transport. That's what it really was. Yes, the target group was mainly people who commute by public transport so that they could commute the last part by bike. (Interview Planner – City of Lund 2019, author's own translation).

Taken together with the lack of mention of BSS in overall documents, and the specific documentation in relation to the bike sharing system, our interpretation is that bike sharing in Lund, as in many other cities, is seen as a part/extension of the public transport system and not as *cycling* as such.

Moving to the spatial analysis of the distribution of the docking stations in Lund, the conclusions above are further supported. Docking stations are placed in areas close to public transport hubs, areas in which many people work, and the major tourist destinations within the city of Lund (see Fig. 1–3 below).

As indicated in the maps in Figs. 1–3, the bike sharing stations are located along certain public transport lines and close to major workplaces. The stations have thus been placed where the density of jobs is highest. As such, the maps indicate that bike sharing not only is connected to the public transport system and can be seen as part of that, but it is also directed in support for people who work at the major employers in the city. Many inhabitants of Lund do not necessarily use public transport within the city, since Lund is relatively small and many inhabitants' cycle. As such, it is not unreasonable to assume that one important target group is persons that are commuting to Lund from neighbouring municipalities. This reinforces the problematisation of the BSS as a policy aiming to facilitate commuting and work-related travel. This problematisation is embedded in a sustainability ambition related to increasing the attractiveness of public transport through the ambition to solve the last-mile problem. In addition, the maps also indicate that the bike-sharing stations are located close to the major tourist attractions of the city, such as the university, the cathedral, the major squares (Stortorget and Mårtenstorget), the botanical garden, the main town park, etc. All of these destinations are located in or very close to the city centre. The location of the docking stations thus confirms that the second problem representation, which was related to offering a good transport solution for tourists and other visitors to the city. Finally, the map in Fig. 3 shows where low income and student housing are located in the city. Compared to the map in Fig. 1 that shows the bike sharing stations in the city, a pattern appears that indicate the placement in Lund is not necessarily inclusive and thus could be seen as excluding certain groups of inhabitants from the BBS and the transport system.

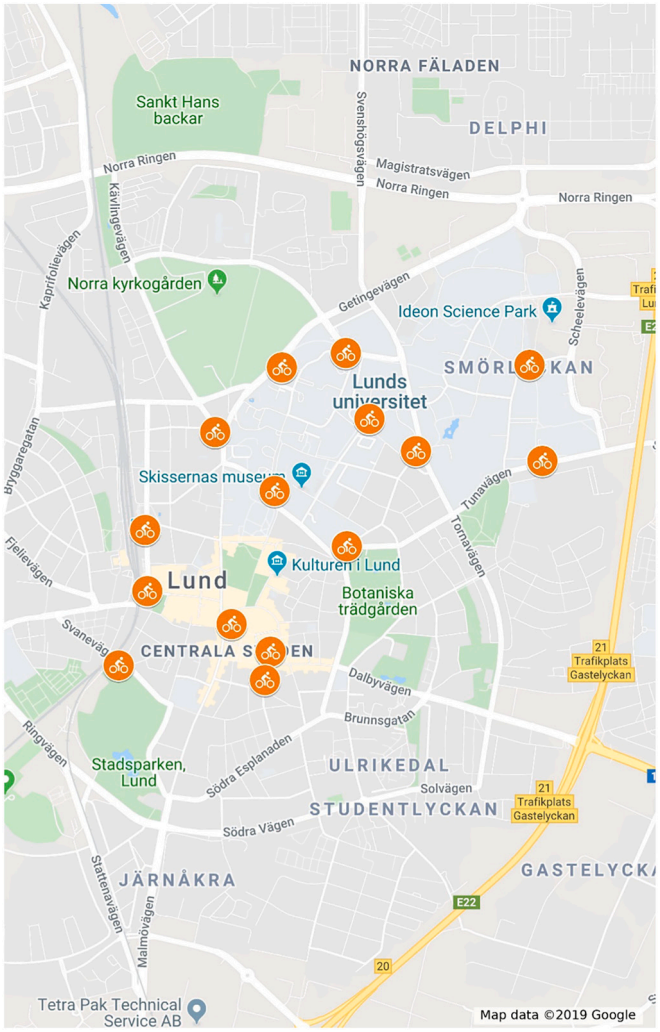

Fig. 1. Bike-sharing stations in Lund.
Source: Lundahoj, 2019

In summary, the BSS appears not as a measure to promote cycling, but a way to solve problems related to commuting by public transport and increasing attractivity for tourists. Here the BBS promotes and creates mobility for commuters and tourists, rather than offering sustainable mobility solutions to persons that are unemployed, retired, students or for other reasons are not working. Thus, we see also potential tensions between different sustainability values. Even though the last mile problem is essential in increasing the attractivity of public transport for commuters, it also opens up concerns related to spatial and transport injustice and the accessibility to green, quiet and healthy modes of transport.

4.2. *What presuppositions or assumptions underly this representation of the problem?*

In our interpretation, and following the analysis above, the assumptions that underly the representation of the problem can be

Fig. 2. Public transport network Lund.
Source: Skånetrafiken, 2020

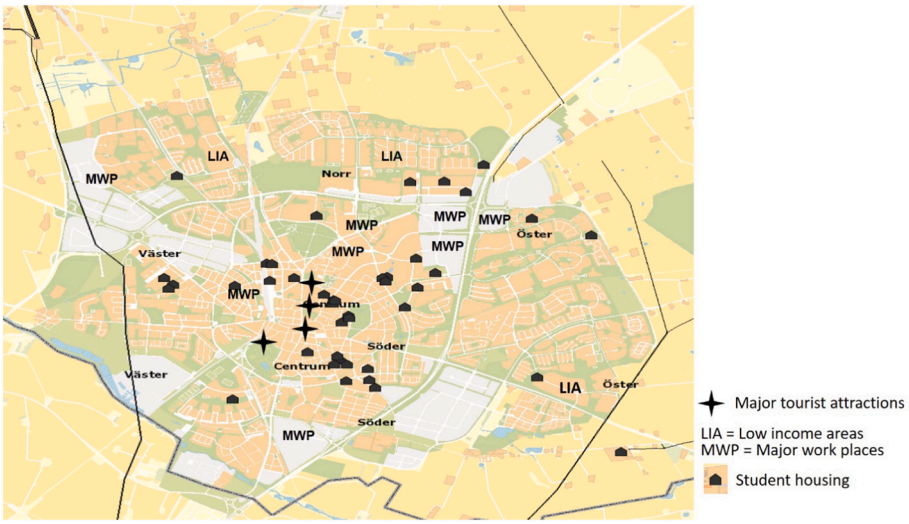

Fig. 3. Location of major employers, low-income areas, and student housing, Lund.
Source: City of Lund, 2020

summarised as follows:

1. Bike sharing addresses barriers for people travelling by bus.
2. Bike sharing is part of the public transport system and is ideationally separated from cycling – bike sharing has no intrinsic value, other than solving the last mile problem for commuters and create an attractive system for tourists.
3. Bike sharing is primarily for commuters and tourists.

Sustainable transport modes are discursively and spatially created in a hierarchy in the material. In relation to the *first* assumption above, the bus network is placed centre stage as the choice of the sustainable urbanite, and the bus (rather than walking or cycling) is continuously promoted as the transport choice in need of support. The bus is also promoted as a sustainable and attractive choice in broader planning processes in the city. Lund's zoning plan mentions several bus projects and the importance of buses for the sustainability of the transport system (City of Lund, 2010). As previously stated, the plan also addresses cycling as an important issue and mentions the light rail system that just has opened in late 2020. Furthermore, the plan mentions the importance of walking (City of Lund, 2010). Yet as indicated above, the documents from Lund explicitly describe the BSS as a "supportive part" of the public transport system, particularly for local bus routes in the city. In this context, the following is stated in Lund's SUMP:

Cities also need to manage the flow of regional commuters. It is primarily about efficient public transport solutions with the whole trip in focus. However, bike-sharing systems are also useful tools. (City of Lund, 2014: 12, author's own translation).

Hence, the BSS is constituted as a tool to aid the "primary" target of public transport. This moves us over to the *second* assumption, that *bike sharing is part of the public transport system and is ideationally separated from cycling – bike sharing has no intrinsic value*.

As mentioned in section 3.1, most of the strategic documents of Lund do not mention bike sharing at all. This is a surprising result because it

seems that Lund implemented the BSS to foster sustainable mobility and to develop a sustainable transport system. Furthermore, neither the cycling strategy of the region of Scania nor the national cycling strategy in Sweden deal with bike sharing. This means that neither Scania nor the Swedish government sees bike sharing as strategically important when it comes to cycling. Moving to the municipal level, the most strategic documents in Lund are the city's zoning plan or master plan. Again, our overview shows that the master plan for Lund does not mention bike sharing (City of Lund, 2010). This indicates that a BSS is not regarded as being part of the work that Lund is doing with cycling. Cycling is mentioned several times in the plan, and it is also stated that Lund wants to develop its cycling infrastructure. However, bike sharing does not appear to be part of this work. This is surprising as the SUMP of the city of Lund and the other strategic documents see the sustainability of the transport system of Lund as an important aspect. However, even though cycling is often mentioned as one major part of the city's sustainable transport system, very little is said, for example, about direct infrastructural measures to improve the cycling situation in the city (City of Lund, 2010, 2014, 2018). The share of cycling in the modal split of the city is rather high (ca. 27%, not including bike sharing). This is also due to the high student population in the city (43,000 students) (Region of Scania, 2018). Nevertheless, the cycling infrastructure in Lund is to some degree rather poor (Koglin and Glasare, 2020). In Fig. 4 below, one can see how the cycling infrastructure in Lund is implemented and what problems might be caused through that. The first picture shows with clear marks where one should cycle; however, the path leads to nowhere. The second picture was taken along the one major public transport network from the station. The space cyclists have there is very limited.

As the BSS is regarded as a form of public transport rather than cycling, the opportunity to improve the infrastructure, and thereby potential increase in cycling is over-looked. In this, Lund is missing an opportunity here to develop their sustainable transport system (Koglin, 2015a, 2015b). This could further marginalise cycling in public spaces, as well as the provision of cycling infrastructure.

The *third assumption* is related to subject positions, insofar as *BSS is primarily aimed at commuters and tourists.* The discourse analysis and the spatial analysis reveal a strong subjectification that is centred around "the sustainable commuter" rather than "the cyclist" – a person in his/her own right who wants to cycle for health reasons or for personal preferences. In addition, tourists are also mentioned as a target group for BSSs. What these two subject positions have in common is that they are associated with ambitions related to growth and attractiveness rather than sustainability.

Figs. 5 and 6 below show images along the major public transport network in the city and the bike-sharing stations located close to that network and to major tourist attractions. Intrinsically, the spatial analysis of the bike-sharing stations indicates that the target-group for BSS is primarily commuters and tourists, arriving to Lund by train or bus and continuing to their workplaces, or the major tourist attractions, along the public transport network. In addition, areas with a high degree of low-income housing are largely excluded from the BSS (map in Fig. 3). The locations of the docking stations clearly support the sustainable and healthy mobility of commuters and tourists. In this regard, we find – in line with previous literature on sustainable transport planning – that the problematisation and spatial organisation of BSSs can be said to be centred around a growth paradigm, although sustainability is explicitly mentioned (eg. Rehnlund, 2019; Essebo and Baeten, 2012). In this, the spatial configuration of the BSS indicates a potential tension between growth and sustainability (including social inclusion). Even though sustainability aims are explicitly mentioned, and addressed in relation to the last mile problem, there is a tendency to sidestep the potential contradictions between growth and sustainability. Instead, there appears to be a silent assumption that BSS constitutes a win-win situation by promoting both growth and sustainability.

Summarising the assumptions, the BSS in Lund is primarily conceptualised as part of the public transport system. Thus, the BSS in Lund firstly promotes mobile subjects in their capacity of being commuters and tourists. Moreover, despite the fact that cycling is high on the agenda in Lund, bike sharing does not appear to be regarded as being part of the cycling system and is not mentioned at all in connection with cycling. Neither the planner nor the documents analysed here state the necessity of connecting bike sharing to a good cycling infrastructure. Furthermore, the benefits of cycling – as well as with shared bikes – such as public health, are not mentioned as potential motivations for investing in BSS. Why does this matter? If the BSS were to be seen as cycling and as part of the cycling system of the city, the cycling infrastructure might be improved because more bicycle trips would be measured, and a larger group of people would be seen as cyclists in the city. The larger the group of cyclists, the more political pressure could be created to improve the cycling infrastructure of the city (Koglin, 2013).

4.3. *What is left unproblematic in this problem representation? Where are the silences? Can the problem be thought about differently?*

From the representations of bike sharing and the underlying assumptions mentioned above, some silences can be drawn. The focus here is on two aspects, namely:

1. A shared bike as a bicycle, with the intrinsic values that lie in the bicycle as a sustainable means of transport.
2. The need to problematise and assess the sustainability of the BSS.

In relation to the *first aspect* of the shared bike as a bicycle, the analysis above indicates that BSS in Lund is primarily regarded as part of the public transport system. This view might also explain why there is no

Fig. 4. Cycling infrastructure, Lund.
(Source: Till Koglin)

Fig. 5. Bike-sharing stations along the public transport network and close to major workplaces in Lund. (Source: Till Koglin)

information about the BSS in the city's cycling strategy. Neither the planner nor the documents mention the sustainability values of cycling in connection with the BSS. Not a single reference is made to the health benefits of cycling or to noise reduction in connection with bike sharing. Thus, the positive effects of cycling are not considered to be parts of the potential values promoted through bike sharing. Instead, public transport is seen as *the* sustainable mode of transport that must be supported by a bike-sharing system in order to increase its percentage of the city's mode share. However, this is not without problematisation from the municipality, instead the planner stated:

But then it is also possible to use public transport between the bike-sharing stations. It would have been good to have bike-sharing stations for both public transport and at other locations. … It was a symbolic question for Lund, I think, implementing this little bike-sharing system. (Interview Planner – City of Lund 2019, author's own translation).

This quote shows the planner's awareness of the different possible prioritisations and considerations that might be made in relation to the placement of the docking stations. Different localisations promote different mobile citizens, but also different sustainability priorities, such as what is to be considered "the most" sustainable solution, public transport or cycling. Here, the planner reflects on the different ways of making bike sharing more inclusive and accessible for all citizens, particularly from a spatial perspective. As shown above, by discursively separating bike sharing from cycling, an opportunity for improving the cycling infrastructure (and thereby increasing cycling) is missed. This reflects the inherent tensions between different ways in which BSS may be sustainable, and how choices in regarding to discursive framings and spatial locations promotes certain values and not others.

The second aspect, which was left unproblematic in the empirical material, is the *question of whether or not BSSs in themselves are sustainable*. There are several different aspects that need to be taken into consideration here, besides the question of where the docking stations are placed. One aspect relates to the operational solution. JCDecaux, who is running the system, transports the bicycles on small trucks to stations where no or few bikes are currently located. This, of course, has an impact on CO2 emissions because the trucks are fuelled by conventional petrol or diesel, and there is a consequential increase in the use of motorised modes of transport (Fishman et al., 2014). Moreover, the trucks also take up street space that could be used by non-motorised modes of transport. As mentioned in section 2.1, previous research has indicated that bike sharing systems do not necessarily led to a reduction in CO2 levels. Finally, another sustainability aspect relates to whether BSSs replace trips by car or replace trips by other forms of sustainable transport. Because it only appears to support the public transport of a city, it is most likely that bike sharing attracts public transport users and not car drivers. This is also something the planner was aware off:

We conducted an investigation into what kinds of trips the shared bikes replaced. If I remember correctly, a very low percentage replaced car journeys and they replaced public transport journeys considerably more. (Interview Planner – City of Lund 2019).

However, the planner stated that they hoped to see a reduction of car use in Lund. Here it is also important to recognise the multiple motivations for implementing BSS, and the strong push-factor constituted by the companies promoting the solution. The planner notes that the initiative came both from politicians "and also JCDecaux and Clear Channel who saw opportunities in Lund…" (Interview Planner – City of Lund 2019). BSS are increasingly being seen as to promote urban attractivity and may even be important for branding purposes. As such, the aspect of sustainability may be only one of several motivations for implementing bike-sharing systems. Again, we return to the notion mentioned above of a win-win politics in relation to both urban growth and sustainability, in which the potential tensions between these goals, as well as different sustainability go are not highlighted or addressed.

Finally, another aspect of sustainability not addressed in the empirical material was issues related to social equity, in this case the equal distribution of access to transport. The spatial distribution of the BSS is clearly marginalising areas of low income as well as areas with high density of student housing in Lund. Moreover, the focus on commuters

Fig. 6. Bike-sharing stations close to major tourist attractions in Lund.
(Source: Till Koglin)

and thus people who work means that people who are unemployed due to sickness or other reasons do not have the same immediate access to such schemes. The analysis also shows that areas with rather low rates of employment and which could be classified as areas with social problems, such as Linero and Norra Fäladen in Lund, are either not part of the BBS at all or only to a very small extent. This tendency is also supported by studies of other cities in previous research, which have noted a lack of usage of BSSs in deprived areas. In this regard, "the lack of docking stations may be of greater explanatory value than in disinterest in the scheme" (Fishman et al., 2013: 158). Bike sharing could potentially contribute to strengthening values such as social cohesion by integrating different, and now segregated, parts of Lund. Viewing bike sharing solely as part of the public transport system – and placing emphasis on the users in terms of commuters and tourists – will lead to uneven access to mobility between excluded groups and those that are, in a certain sense, privileged (employed persons or tourists). This uneven distribution of BSSs can also be said to contribute to transport or mobility injustice, in which the commuter and the tourist are regarded as privileged mobile subjects whose mobility is being promoted and aided. In this regard, the spatial organisation of mobilities is affected by what has been described as unjust transport systems (Martens, 2016, Martens and Lucas).

In conclusion, the silences that can be seen in Lund is that bike sharing is not seen as a form of cycling in general. However, a shared bicycle is as much a bicycle as a privately used and owned bicycle. Thus, the benefits of using a shared bike are quite similar to cycling in general. This, however, is not mentioned in the documents or in the interview. Moreover, the distribution of the docking stations makes the utilisation of the BSS for the inhabitants of Lund rather difficult. However, the planner is aware of this and would like to see more docking stations in other parts of the city. The second aspect related to the sustainability of BSSs. Taken together, the documents do not indicate explicit discussion on potential sustainability gains, even though there is an ambition that BSS will replace car-usage. In addition, the placement of stations indicates a need to develop BSS in a more inclusive wat, thereby making the city's transport systems more socially sustainable. This is also something that the urban administration reflects upon.

5. Concluding discussion

This study aimed to continue the conversation and problematisation of the sustainability of shared micro-mobilities, here bike-sharing schemes. In this ambition, we conducted a discursive and spatial analysis of the development of a BSS in a Swedish city, analysed through the broader lens of mobilities and mobility policies. The questions guiding this paper were (i) What is the problem represented to be in the description and spatial organisation of the BSS in Lund? and (ii) What kind of urban citizens or subjects are imagined/created through these mobility services? Regarding the *first* question, the problem to be solved through BSSs is making public transport more attractive and removing barriers for people who are considering using public transport. The spatial analysis supports the discursive analysis and indicated that the BSS is planned as an extension of the public transport system. As shown in previous research, this way of discursively and spatially organising BSS is highly prevalent in cities. Beyond this, ambitions related to tourism and urban attractivity was also indicated in the material.

Related to the *second* question, it can be concluded that two types of mobile subjects are primarily being produced and promoted – the commuter and the tourist. Because the docking stations are located at public transport hubs, such as the main railway station and in areas of dense employment, segregated areas of the city have been spatially excluded from the BSS.

The analysis also showed that bike sharing is – paradoxically enough – not considered a part of cycling. It is in many ways surprising that of all the documents analysed for this article only a minor part mentioned bike sharing (and when mentioned, it is only in brief). To exemplify, the regional cycling strategy does not mention bike sharing at all, and the national cycling strategy only mentions it once, explaining that it is part of the cycling infrastructure. Yet in the case analysed here, BSS is in fact *not* organised as a part of the *cycling* infrastructure, it is instead organised as a part of the infrastructure of *public transport.* Intrinsically, the positive effects of cycling are not connected to the motivations on introducing BSS in Lund. But why is this a problem? One problem is that organising in line with working places and commuter lines tends to support certain demographic segments and parts of the city over others. Another problem is that the municipality is missing an opportunity to develop the city's sustainable transport system: The BSS wasn't rolled out as to support the expansion of cycling infrastructure in Lund, despite the well noted benefits related to pollution, noise, health and safety – and despite the city's stated ambition to promote cycling (cf. Koglin, 2015a, 2015b). Yet the benefits of cycling, such as improvements in public health (cf. Raustorp and Koglin, 2019), were not highlighted in the empirical material. In order to properly support cycling, it has to be part of main policy documents in order to strength cycling as part of the transport system (Scholten et al., 2018; Alm and Koglin, 2020).

It is important to note that BSS is seen as a sustainable policy solution, and it is embedded and organised in a sustainability discourse. Organising BSS as an extension to the public transport system does have important sustainability values, not least if it increases the attractivity of public transport vis-à-vis car-usage. The sustainability of the system as an extension of public transport seems almost as being taken for granted, yet here are many possible ways to spatially organise BSS. One could use it to promote cycling, to promote social cohesion, to increase accessibility to recreational spaces etc. Priorities could relate to a variety of different sustainability values, such as clean air, public health but also issues related to social equity and accessibility (where we know that cycling is often less present in the segregated parts of city). All these solutions emphasise sustainability, yet from different perspectives and with different problems and opportunities. These problematisations – and the necessary political priorities between values that they require – was not visible in the material, even though the planner we interviewed reflected on them.

We know from previous studies that sustainability measures within the realm of transport policies have problems challenging, or even moving beyond, an emphasis on productivity and growth (see e.g. Rehnlund, 2019; Stehlin et al., 2020; Essebo and Baeten, 2012). The promotion of commuters and/or tourists is in line with previous problematisations of the conflict between growth and sustainability, not only from an environmental perspective, but also from a social perspective (cf. Martens and Lucas, 2018). Though there are important inconsistencies between the rationalities of growth and environmental and social sustainability, the currently dominant 'green growth' ideology does entail a tendency to over-look intrinsic contradictions between the internal logics of capital-driven growth approaches and environmental and social sustainability goals. Planning policies, strategies, or visions might reflect a 'sustainability agenda' in their goal formulations, but they often do not translate these overall goals into explicit, integrative, and sensible measures (cf. Vogel, 2016).

Looking beyond this particular case, BSSs can be sustainable, and they have the same health benefits of a bicycle. BSS is often organised on the basis of explicit sustainability goals, yet as indicated in previous research, the motivation behind the location of the stations has often been to facilitate the flow of workers and promote attractiveness and tourism. The potential conflict that could arise between sustainability and growth is not problematised in this form of spatial organisation, even though there is an ambition or strong belief in a win-win situation between sustainability and growth. No doubt this is something that many planners are aware of, as it is a general problem throughout the green growth discussion. Yet from a sustainability perspective there seems to be room for more explicit political prioritisations between different values in deciding how to spatially organise BSS in cities.

Authors' statement

Dr. Koglin is the corresponding author and did all the data collection and analysis of the empirical data. Dr. Mukhtar-Landgren wrote most of the theoretical part and the literature study. Furthermore, Dr. Koglin stood for the spatial theories. Overall, the article has been written by Dr. Koglin and Dr. Mukhtar-Landgren together and stand for 50% of the writing each.

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