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Planning for Sharing – Providing Infrastructure for Citizens to be Makers and Sharers

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ABSTRACT

This paper explores how local authorities can develop infrastructure for collaborative consumption, i.e. sharing amongst citizens of tools, spaces and practical skills. The City of Malmö, Sweden, is used as a case study to illustrate the work with such "sharing infrastructure". Existing planning research and planning practice for sustainability generally focus on facilitating citizens to live in a more eco-friendly way in terms of housing, modes of transport, waste flows and use of green space, but do not address citizens' consumption of other material goods. This paper points to a potential role for local public planning in relation to collaborative consumption through creating sharing infrastructure, i.e. providing access to shared tools and spaces for making and repairing, thus enabling citizens to act in the city not only as consumers, but also as makers and sharers.

1. Introduction

In this paper we explore the potential role of local authorities in developing physical infrastructure for sharing tools and materials and collaborative making and repairing. Empirically, we investigate how a local authority can enable infrastructure for sharing that also functions as public space. During recent years there has been an increased interest in so-called collaborative consumption or the "sharing economy" – sharing things, skills and spaces (Schor, 2014). As Botsman and Rogers (2011) note, collaborative consumption is not new, but is currently being reinvented and expanded with the help of digital technologies. Botsman and Rogers (2011) also point out that contemporary forms of collaborative consumption often take place in a context of economic insecurity, where people have to find low-cost ways of getting by. Another driving force is the widespread awareness of environmental challenges, as sharing material things could be a way of using fewer resources. Certain sharing practices can be seen as an expression of fatigue with the consumerist culture and a desire for other forms of social belonging and participation in society. The practices described as collaborative consumption, or collaborative economy, can vary considerably. Platforms for collaborative consumption can be in the form of for-profit global operations, such as the short-term housing rental service Airbnb and vehicle-sharing services, as well as local non-profit sharing schemes such as swap markets and tool libraries. Cities and local authorities in different parts of the world have recognised that collaborative

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consumption and the wider sharing economy offer possibilities, but also pose problems. Through an empirical case, this paper examines sharing practices that are supported by the local city administration and, more specifically, spaces for collaborative consumption and remaking, driven by a will to contribute to more resource-conscious and inclusive forms of urban living.

Agyeman, McLaren, and Schaefer-Borrego (2013, p. 29) argue that "Building a sharing infrastructure and culture is quite simply one of the most important things cities can do to contribute to a fair and sustainable world". As researchers in urban planning, we were interested in exploring what this statement could mean in theory and in planning practice. The theoretical framework of this paper combines literature on the sharing economy and do it yourself (DIY) culture with research on sustainable consumption, with the focus on alternative "infrastructures of provision" (Seyfang, 2011). By linking these strands of literature we created a theoretical framework arguing that local authorities can play an active role in planning for what we call "sharing infrastructure", i.e. socio-technical infrastructure for sharing resources, tools and skills. The sharing economy is often criticised for having exclusionary effects whereby the peer-to-peer systems of exchange and reciprocity strengthen individuals with strong social capital who know how to organise and who have assets to share, and excluding those who are considered less trustworthy and do not have as many assets to share (Schor, Fitzmaurice, Carfagna, Attwood-Charles, & Poteat, 2016). In this study we explored how local authorities, which have public responsibility to be inclusive and serve all citizens, can engage in the sharing economy and, more specifically, actively plan for inclusive spaces of sharing tools and collaborative remaking.

Empirical material was obtained in a case study of the City of Malmö in Sweden, which is considered a forerunner when it comes to environmental planning. Interviews with key public officials were conducted, as were studies of two practical examples of sharing infrastructure: STPLN (pronounced Stapeln), a multi-purpose maker space, and Garaget, an "urban living room" where citizens can borrow different materials, tools or the whole space.

The role of local authorities in providing infrastructure for sharing is not new, but rather a core task reflected in providing systems for shared transportation, shared technical infrastructure, recycling facilities and shared facilities for access to information through public libraries and, more lately, public WiFi. However, facilities for shared access to tools for practical making and repairing have not been so much in focus during the last few decades, at least not in cities aspiring to be centres in the so-called knowledge economy. Research and practice in planning for sustainability generally focuses on facilitating citizens to live in a more eco-friendly way in terms of their housing, modes of transport, waste flows and use of green space, but does not aim to influence consumption of other material goods (e.g. studies on urban sustainability by Farr, 2008; Haas, 2012; Wheeler & Beatley, 2014). A novel contribution of this study is that it suggests that an emerging role for public planning authorities is in developing infrastructure for sustainable consumption through collaborative (re) making, i.e. sharing tools, spaces and skills for making and repairing. In mainstream environmental politics the emphasis is on fostering "green responsible consumers" who can make informed environmental choices and hence push corporations towards more sustainable production (Mont, Heiskanen, Power, & Kuusi, 2013; Seyfang, 2011). In contrast, the empirical and theoretical arguments in this paper emphasise the role of citizens as makers and producers, rather than as mere consumers. We also argue that the forms of sharing infrastructure developed in Malmö can be viewed as "hacking into" traditional public infrastructure, functioning as spaces for practising citizenship beyond consumerism, democratising access to tools for conviviality and possibly contributing to more just socio-environmental planning.

2. Theoretical framework

Our framework draws on three different strands of research: first, the debates around the contemporary sharing or collaborative economy, second, the notion of "tools for conviviality" and DIY tactics in relation to urban development, and third, the debates around sustainable consumption and the responsible consumer.

2.1. The sharing economy – an issue for public planning

Recent years have seen the spread of what is referred to as "the sharing economy", "collaborative consumption" or "the collaborative economy". In 2011, *TIME* magazine described "collaborative consumption" as one of the 10 ideas that will change the world (Walsh, 2011). The collaborative economy is defined as

> initiatives based on horizontal networks and participation of a community. It is built on "distributed power and trust within communities as opposed to centralized institutions … blurring the lines between producer and consumer. These communities often meet and interact on online networks and peer-to-peer platforms, as well as in shared spaces such as Fablabs and co-working spaces. OuiShare (n.d.)

The collaborative economy encompasses commercial for-profit sharing platforms, barter and co-operative structures and a myriad of citizen-managed, not-for-profit sharing schemes, such as tool pools, clothing libraries, neighbourhood swapping initiatives and maker spaces. The common denominator is a focus on access to goods, services, spaces, skills etc. that are under-utilised, rather than individual consumption and ownership (Botsman & Rogers, 2011). For instance, rather than individually buying and owning a power drill, a prospective user could access it when needed through a community tool pool or through a peer-to-peer digital sharing platform, like StreetBank or Peerby. Collaborative consumption can hence provide the potential for lowering environmental resource use and possibly also democratising access to resources. However, the actual social and environmental effects of the collaborative economy are being debated (Schor, 2014; The *Economist*, 2015). In several cities the expansion of commercial sharing economy platforms, such as Airbnb, has resulted in positive income effects for people who have spare rooms to let and has facilitated low-budget and "personalized" travel (Guttentag, 2015). At the same time there are cases of discriminatory practices (Edelman & Luca, 2014) and the expansion of Airbnb accommodation also appears to have adverse effects on the housing market, turning certain neighbourhoods into tourist parks and making it more difficult for people living in the city to access affordable housing (Van der Zee, 2016; Zaitchik, 2016). In recent studies on grass-roots non-profit sharing platforms, such as maker spaces and food swaps, Schor et al. (2016) have demonstrated how these sharing platforms become robust and work well when there is a fairly homogeneous community of sharers, whereas difficulties arise when people are to collaborate and share resources with others that are perceived as different – culturally or socio-economically. Hence, there are exclusionary effects not only of the commercial platforms but also of the grassroots non-profit sharing platforms.

In response to the growth of the collaborative/sharing economy, public authorities are, on the one hand, developing policies and changing legislation, in order to handle problematic practices of the sharing economy, for instance limiting the time for subletting on Airbnb, and, on the other hand, facilitating sharing practices that are seen as beneficial for society (Coldwell, 2014; Wosskow, 2014; Fink & Ranchordás, 2017). On the enabling side, local authorities for instance are developing infrastructure and policies to facilitate vehicle sharing, supporting community maker spaces, opening repair studios and tool libraries, providing land-sharing platforms (Agyeman et al., 2013; Finck & Ranchordás, 2017;

McLaren & Agyeman, 2015; Shareable & The Sustainable Economies Law Center, 2013). In terms of discussing the role of the city in relation to the sharing economy, it is important to specify what kind of sharing practices are in question and what the purposes are.

2.2. Tools for conviviality, DIY and hacking

In this paper we focus on a certain part of the sharing economy, namely the non-profit sharing of resources and tools, or more specifically having access to what Illich (1973) calls "tools for conviviality", meaning tools that enable ordinary citizens to reconquer practical knowledge for autonomy and creativity. As Illich (1973, p. 22) states, "Tools foster conviviality to the extent to which they can be easily used, by anybody, as often or as seldom as desired, for the accomplishment of a purpose chosen by the user". From this perspective, industrial productivity and commodification "ends up depriving people of the freedom to produce goods on their own, or to exchange and share what they need outside the market" (Deriu, 2015, p. 79). Illich's work from the 1970s has also influenced the open-source movement, hacker ethics and contemporary movements around DIY tactics, the maker movement and degrowth (Deriu, 2015). In this paper we make use of the term "hacking", not in the sense of computer hacking, but rather as "urban hacks" or "hacking the city", denoting tricks, shortcuts or skills that use something which is already there, twist it and thereby change its usage, turning urban functions in favour of users and everyday people (Schmidt, 2011). Urban hacks or DIY urban interventions in cities of the Global North have received differing responses from public authorities, with such interventions being ignored, policed but sometimes welcomed and even encouraged by public authorities (Bradley, 2015; Finn, 2014). The spread of DIY urbanism has occurred in parallel with the post-2008 economic crisis and the scaling back of public responsibility for funding and managing urban infrastructure. Critics hence argue that low-budget DIY tactics and hacks perhaps unintentionally function as a sticking plaster for wounded long-term public planning (Brenner, 2015). Moreover, there is a risk of citizen-led initiatives primarily favouring well-organised communities, as they often build on voluntary engagement and trust between community members, whereas those who are not perceived as trustworthy or socially skilled may be left out (Krivý & Kaminer, 2013; Schor et al., 2016). However, others view the grassroots interest in being makers of the city as a possibility to make urban planning more democratic and bring it closer to the needs and desires of citizens (Bradley, 2015; Finn, 2014; Lydon & Garcia, 2015).

Hence, the grassroots sharing economy and DIY urban interventions pose similar possibilities and challenges to public institutions and local authorities. A key question, we argue, is how to meet, handle and/or encourage sharing and collaborative practices that align with ideals of inclusiveness and democratically supported notions of development. Building on the possibilities and concerns about the sharing economy and DIY tactics, we seek to explore how public authorities can play an active role through providing and/or opening up public spaces for citizens and groups of citizens to self-organise activities and to produce, repair and be "makers" and "sharers", rather than merely consumers of standardised goods or public services in the city.

2.3. Planning for sustainable consumption in terms of sharing infrastructure

The consumer choices we make are imbued with social and ecological implications, which we are increasingly called upon to consider in a move towards more "sustainable consumption" patterns. In mainstream sustainability politics, the focus is usually on enabling consumers to choose "the right products" (Mont et al., 2013). However, it is increasingly stressed that citizens in affluent contexts also

need to consume less (Seyfang, 2011; Worldwatch Institute, 2013; Mont et al., 2013). The burden of managing the socio-environmental impacts of current consumption is increasingly being placed on the shoulders of individual citizens, although of course producers, central governments and supranational institutions play important roles in setting the framework for sustainable production, and hence consumption (Mont et al., 2013). As Soneryd and Uggla (2015, p. 913) point out,

> Attention to the environmental impact of everyday consumption is followed by a range of advice on how people can easily change small things in their lives to benefit the environment. Paradoxically, "simple solutions", such as changing light bulbs, having meat-free days, and choosing public transport, are being highlighted at a time when the global, transboundary, and complex character of environmental problems is being acknowledged.

This can be understood as being part of a larger process of individualisation of responsibility in the sphere of sustainability politics (Scerri, 2012; Soneryd & Uggla, 2015), in planning (Gunder & Hillier, 2007) and in politics and the public discourse at large (Hursh & Henderson, 2011; Rose, 1999). Soneryd and Uggla (2015) argue that consumer "responsibilisation" has become a key element of current environmental governance in the Global North, and citizens are increasingly being addressed as "responsible consumers" by governments, corporations and the mass media. Soneryd and Uggla (2015) point to the need for exploring governance and policy that challenge the individual as "polluter" or "responsible consumer". On the one hand, to enable collaborative consumption, practices could be seen as a form of resistance to the individualised "responsible consumer", as these practices encourage citizens to get together collectively and become more of makers or sharers; on the other hand, these practices could be seen as another form of self-responsibilisation, since it is still up to the citizens themselves to change, volunteer and be active in the collaborative practices of sharing, lending, repairing and remaking.

In light of this critique we want to explore the role that local authorities could play in making space for subject positions beyond the responsible consumer. Local governments and urban planning can play an important role in this regard by not simply leaving individuals to make their own consumption choices. As Seyfang notes (2011), if consumers can choose between different forms of energy-efficient cars, for example, but cannot choose a reliable, accessible, convenient and affordable public transport system, then the scope for individuals to effect societal change is limited from the outset. Seyfang (2011) argues for the necessity of greening mainstream production and consumption and of developing alternative "infrastructures of provision", often initiated by grassroots initiatives that bypass traditional provisioning routes. This means infrastructure that enables citizens to make other choices in their routine everyday life, for example obtaining fruit and vegetables from community gardens rather than eco-labelled products from grocery stores; becoming producers of energy in cooperative wind farms rather than simply buying green electricity from a standard supplier. Building on Seyfang's (2011) notion of "infrastructure of provision", we want to draw attention to the acting space of local government in relation to issues of consumption and their role in re-shaping and re-framing infrastructures of provision that enable citizens to become makers, sharers and repairers, rather than mere consumers, through providing what we call "sharing infrastructure".

3. The case: sharing infrastructure in the city of Malmö

3.1. Background – Malmö City

The city of Malmö is located in southern Sweden and has a population of around 300,000 people. It is Sweden's third largest city, but it is also part of a larger trans-border urban conurbation together with the city of Copenhagen. Malmö has an industrial past, with a large shipbuilding industry that

faced decline and transformation during the 1980s and 1990s. It has traditionally been a working-class city and, although much restructuring has taken place, income levels are below the national average (Statistics Sweden, 2013). Compared with most other Swedish cities Malmö hosts a larger percentage of foreign-born residents; around a third of its inhabitants are born abroad, coming from 178 different countries (Malmö stad, 2017). City of Malmö The City of Malmö has worked actively with economic restructuring, further education, environmental planning and programmes for social justice, rebuilding and rebranding the city (Nylund, 2014). In 2010–2013, Malmö was the first city in Sweden to have a special commission working on measures to reduce social inequalities and to improve the long-term living conditions for the citizens of Malmö.[1]

Malmö's rebuilding and rebranding have in some respects been considered successful. Forbes (2013) declared Malmö to be "the fourth most innovative city in the world". It has become internationally known for its work with sustainable urban development (primarily through its flagship urban renewal project, Western Harbour) and has for several years in a row been voted "best environmental munici-pality"[2] in Sweden. However, many of the socio-economic problems remain and there is also criticism of the social effects of gentrification and rebranding of the city (Baeten, 2012; Ståhle, 2014). Malmö is a stronghold of alternative culture and its radical grassroots groups have often been supported by the City's administration. The City has been governed by a red-green administration since 2002, but before that the social democrats mainly held power since 1919.[3] When it comes to collaborative consumption and infrastructure for sharing resources, Malmö is proactive and promotes several sites and schemes for sharing, some of which are initiated and managed by citizens' groups, others by the City. In Malmö City's *Action plan for the environmental programme 2015–2018* (Malmö stad, 2015), supporting collab-orative consumption is mentioned as a key strategy. The plan also states that "Access to products, skills and services such as car sharing, bike sharing, tool pools, clothing libraries, repair studios and other forums for swapping, renting and reusing must be scaled up and developed" (Malmö stad, 2015, p. 10, authors' translation).

3.2. Material and method

Given that Malmö is known for its proactive socio-environmental planning and has started to employ strategies enabling a greater sharing of resources, it serves as a relevant case study when exploring the current and potential role of local authorities in relation to collaborative consumption and remaking. In order to explore the role of the city in this context, we interviewed key public officials at the City of Malmö regarding wider goals and plans, and then studied two practical examples of sharing infra-structure – the physical spaces STPLN, a multi-purpose maker space (Figure 1), and Garaget, an "urban living room" where citizens can borrow different resources or the whole space (Figure 2).

We wanted to choose existing examples, in which the City is involved, of physical sites that encourage reduced material consumption through sharing goods, repairing or remaking and that are open to all. Such examples demonstrate the potential for combining sustainable consumption with citizen-centred urban planning opening the way for public planning to enable new forms of "sharing infrastructure". Both STPLN and Garaget meet these criteria. However, the City of Malmö is also involved in several other initiatives concerning collaborative consumption that interpret ways of sharing resources differently, for instance an in-house online system for exchanging and reusing the City's furniture and appliances, the urban development project The Line, which is described in planning documents as "Europe's first sharing economy" (Malmö stad, 2014a), recycling stations that encompass "free shops" and a municipally funded "urban living room" in the district of Persborg. The

City has also arranged a series of workshops and temporary events on clothes swapping, repairing and remaking.[4] However, STPLN and Garaget are well-established physical sites in Malmö for sharing and collaborative repairing/making in which the City is currently involved (see study of STPLN by Seravalli, 2014). They combine public spaces with democratic ideals of how to provide access to the sharing of tools and different means of production, and were therefore chosen to serve as illustrative examples in the present study.

During 2014 and 2015 we visited STPLN, Garaget and the City and carried out a total of 10 semi-structured interviews. The interviews with employees at Garaget and STPLN concerned ideas and visions for the spaces, how the spaces are organised and who takes part in the different activities. We also used documents, websites and annual reports of STPLN and Garaget, from which we retrieved data about the activities, visitors and finances of the spaces. The five city officials interviewed were all involved in collaborative consumption and/or infrastructure around sharing, and held various positions at the Environmental Administration and the City Planning Office. We did not conduct interviews with citizen users, as our focus was on the driving forces, ideas and visions, and specifically the role of the City. Hence, we do not claim to know the actual effects of these infrastructures and how they are perceived by the wider public.

Below, we first describe the city officials' perspectives on reasons for working with sharing infrastructure. Then, based on our interviews and site visits, we describe the operations of the two illustrative sites, STPLN and Garaget. The third empirical section focuses on the possibilities and constraints in developing and scaling up the provision of sharing infrastructures, as this was a central issue that emerged from the interviews with both the city officials and the employees at the two sites.

3.3. City officials' reasons for working with sharing infrastructure

The Head of the Environmental Office believed that a "sharing society" could be the future overall vision for the city. He stated that if the recycling society (*kretsloppssamhället*) served as a vision in the 1990s, today the sharing society could be a principle to guide urban development. He argued that this would encompass building and re-building the city in order to distribute private space and common space in more resource-efficient ways. Going from providing car sharing and bike sharing, the next step for the City would be to plan for housing that facilitates shared access, rather than individual ownership. The idea is to build affordable and sustainable housing where the size of the apartment is minimised, but at the same time compensated with access to better common areas and where urban spaces in a dense city can serve as "living rooms". One of the projects underway is redevelopment of the Sege Park area into an eco-district where sharing serves as the principle for use of "space, mobility and things".[5]

An important aspect of sharing and access underlined by public officials was that of democracy or, as one employee at the Environmental Office put it, "The municipality should be a solidarity entity, sharing is an aspect of democracy". The argument was that the role of the City should be to support equal access to knowledge in terms of education and lending books at libraries, but also in terms of providing access to tools that enable people to solve issues by themselves and hence become empowered. As one of the employees at the Environmental Office noted: "We are part of a larger trend, people are tired of just use, throw away and buy new stuff. People now want to be able to *make* and fix things" (emphasis in original).

One of the head officials viewed sharing and remaking initiatives as something that could potentially increase the rate of employment in the city, with remaking initiatives leading to jobs within crafts

and repairing and building up a much-needed service sector. She pointed out that the practical skills possessed by many unemployed residents of Malmö could be developed and could be more valued in the future. Trust and relationship building were also mentioned as important aspects of sharing practices. As one official said, just going out and borrowing a power drill can be one small step in feeling part of society and a remedy for loneliness. However, one of the head officials pointed out the major challenge of finding ways to work with resource sharing that appeal to wider groups of citizens. She reported that there is currently a group of engaged citizens, including herself and most colleagues at the Environmental Office, who are into buying second-hand, swapping and repairing, but that promoting such activities to certain other groups can almost be perceived as an insult. However, another head official claimed that, "Sharing comes naturally when you start thinking of living more resource-efficiently. It can also be because you don't have very much money. That is where the hotbed for these issues lies". Yet another official raised the example of the Bike Kitchen, a DIY bike repair workshop that is part of STPLN, and pointed out how it functions as a public space and a site for social integration, for instance for newcomers to Sweden who can work there as volunteers and learn Swedish while they are in the process of waiting for their asylum or immigration claim to be handled.

In general, environmental concerns are often the starting point of sharing initiatives, but all interviewees also stressed the social aspects, often referring to the work of "The Malmö Commission"[6], which has shifted the agenda of the City from environmental questions towards handling social (in) justices and polarisation in the City. As one of the officials at the City Planning Office described it, "We should not lose what we have done regarding the environment, but we have to come to terms with the injustice within the city now". Several of the interviewees claimed that there is clear political support for working with sharing infrastructure and that the Action Plan for the Environmental Programme specifies that the City should work with collaborative consumption (Malmö stad, 2015). As one of the head officials put it, "We need to change mindset within consumption issues and now we have political backing for this".

3.4. The example of STPLN – a multipurpose maker space

One example of sharing infrastructure in Malmö is STPLN – a multipurpose maker space where citizens can test ideas, create, repair, remake, tinker with, or arrange cultural events. It encompasses several parts: The Bike Kitchen – an open DIY bike repair studio (Figure 1), Hub:n – a free drop-in co-working space, Fabriken – a maker space with machines and tools for digital fabrication, carpentry, electronics and construction, Grupptrycket – a community DIY textile workshop with sewing machines, a knitting machine and tools for screen-printing, Återskapa – an arts and education centre for creative remaking and "upcycling", and Kreatech – a low- and high-tech crafts workshop. Apart from these subspaces, STPLN can be used by groups that want to pursue other projects or need space or tools, and the staff also organise temporary workshops in other neighbourhoods and schools for example (STPLN, 2015a).

STPLN is short for "stapeln", the Swedish word for a space used for shipbuilding. STPLN was refurbished and opened to the public in 2011 and is located in a former shipbuilding yard in an area being transformed from industrial use to housing and a university campus close to the Western Harbour area. The City, which owned the old docks, wanted to transform one of them into some form of meeting place. The idea was that the space should be independent of the City and run as a non-profit organisation. A person to initiate the process was appointed and, together with a wide array of people, artists, makers and young people, developed the concept for STPLN. The group recognised that what people in Malmö were lacking was a space where they could produce things, not only meet or consume things

Figure 1. The Bike Kitchen at STPLN. Photo by Karin Bradley.

or culture. They were also inspired by the Fablab concept[7] and the idea of local production for local needs. As the initiator put it,

> The house should be an infrastructure for people to develop production, a project or an idea, small or big … We want the house to be this infrastructure, the workshop you wish that you had in your garage or the textile printing space that you cannot fit into your living room.

STPLN is also intended to be a site where the users "set the agenda and the content".[8] Therefore the content of STPLN tends to change, as do the people who use the space. In 2015, STPLN had 30,000 visitors and arranged around 900 workshops/activities (STPLN, 2015b). Visitors range from preschool children to the elderly. In Sweden it is forbidden to gather data on the ethnic background of visitors and hence there are no quantitative data on this. Certain workshops are specifically arranged for children, teenagers, families, senior citizens, girl geek meet-ups etc., or are temporarily set up in specific neighbourhoods, particularly distressed post-war housing areas. Thus, many different groups of people visit and take part in the activities at STPLN. The upcycling workshop (Återskapa) hosts kindergartens and schools from all over Malmö – in this way the activities of STPLN reach out to large parts of the young population of Malmö.

Most of STPLN and its different parts can be used by anyone, free of charge, but in order to use the premises and tools in Fabriken, prospective users need to become a member of the STPLN association and pay a fee, which includes training on the machines. On one evening per week Fabriken is open to the public and then all work needs to be open-source and belong to everyone. Just like many maker spaces and Fablabs around the world, the idea with Fabriken is to enable citizens to produce, repair and make things to use, and to produce prototypes that might later evolve into products or services for a market. However, the spaces are not to be used for commercial fabrication. The textile workspace,

Grupptrycket, is run in the form of a community DIY workshop which anyone can use, but where users are expected to "give something back – perhaps arrange a workshop, help others or bring textiles, thread or knitting wool". (STPLN, 2017)

The Bike Kitchen is a DIY workshop to which anyone can take their bike for repair or maintenance and ask for help or learn from others. Users can borrow all necessary tools and access recycled spare parts free of charge. The Bike Kitchen also serves as a recycling centre for abandoned bikes. Landlords, the police and citizens can deposit old bikes or spare parts which people can then use. The Bike Kitchen is a well-visited part of STPLN and an example of an externally funded time-limited project.[9] When the initial three-year project funding came to an end in 2014, the Bike Kitchen struggled to find new and more permanent sources of funding. During a one-year period the Bike Kitchen was primarily open for paying members, but in 2016 it received new funding and is again open to the public for free. Through another external grant, a new function was added to the Bike Kitchen in 2015; this is the "The Bike Library", where anyone can borrow cargo bikes and electric bikes for 12 days for a nominal fee.[10]

The philosophy of the Bike Kitchen entails social, economic and environmental aspects – to promote cycling, reuse old bikes, develop a culture of collaborative hands-on learning and promote gender equality in repair workshops, empowering people to see that they can actually fix things themselves and do not necessarily need to be dependent on buying things or services (Cykelköket, 2013). One of the initiators of the Bike Kitchen said,

> We have noticed how people think it is really fun to repair old things. It is like new value is created when you have mended it yourself, rather than buying a repair service or buying new. I would say this is like a generation that is tired of buying, using and throwing away.

The Bike Kitchen has also proven to have social effects beyond the collaborative learning. The initiator described this as follows.

> What has happened, unexpectedly, is that this place has turned out to be a great social meeting place for people in Malmö. On an ordinary evening you will hear around five different languages here. People come here because their friend is here repairing a bike, so people come along, drink some coffee and just hang out here because it is a really nice place to hang out in.

The initiator described how the users are of all ages, both genders, with varying ethnic and socio-economic backgrounds, coming from different parts of the City, with varying forms of knowledge and skills, and in fact come together through a common interest in doing practical repair work. Having spent several hours at the site on two different occasions, we observed the vitality of the space and confirmed that interactions across social divides were indeed taking place.

Since its opening, STPLN has received long-term basic funding from the City of Malmö, with the proviso that additional funding for specific time-limited projects is sought from other sources. STPLN has managed to obtain such co-funding.[11] However, when externally funded three-year projects come to an end, on several occasions there have been debates on how to retain the experience that has been built up (STPLN, 2015a). As of 2015, STPLN had 11 employees (some full-time, some part-time), a number of external paid workshop leaders, and a system for volunteering (STPLN, 2015a). STPLN is also often involved in itinerant spaces or in setting up similar spaces in other areas, for instance Returen, a maker space and re-use centre, located in the infamous post-war housing area of Lindängen (STPLN, 2015a).

3.5. The example of Garaget – an "urban living room"

Our second example of sharing infrastructure is Garaget (Figure 2). Since its opening in 2008, Garaget is described as

Figure 2. The creative workshop at Garaget. Photo by Anna Hult.

the extra living room for the citizens of Malmö – a place where you can read, borrow books or magazines, have an organic coffee, meet friends, borrow tools or sewing machines, borrow a laptop or i-Pad, go to lectures or cultural events, arrange events, go to a language café or spend time with your children in the children's corner. And much more. (authors' translation) (Malmö stad, 2014b, p. 2).

The name Garaget (which in English translates to "The Garage") comes from the previous function of the building as a garage for electric buses. In 2007, when it was no longer in use, the City of Malmö initiated a dialogue with citizens through a number of workshops. From among the suggestions raised (ranging from an indoor swimming pool to a kindergarten for dogs), the City decided to provide five different core activities: an organic café, a creative space, a library, an open stage, and a place to just hang out. These five activities are still the basis of Garaget. At the same time, there are continuous efforts to obtain suggestions from the public and involve citizens about the kind of activities they would like to take part in or co-create. As one of the employees expressed it, "If you work here you get to do what people have the need for, if you bring people what they want, they will come, we continually have more people and more lending of both books and tools".

At the time of our visit, in addition to the library, the reading and working area and the stage, there was a workshop where people could sit and borrow creative materials, sewing machines, tools for fixing smaller things; a computer room, specific silent rooms and a prayer corner. The space also hosts temporary workshops on language training, societal guidance and knitting, etc. Users can buy food or coffee in the café and also bring their own food and heat it in a microwave oven. Users can also borrow the keys to the space for free if they want to host an open evening event. The idea of lending out tools, games and sewing machines came from the users. The library started by buying a hammer drill and later other tools that people seldom use, but sometimes need. Today, Garaget has approximately 20 kinds of tools for lending and recently brought in two more hammer drills, as they are very often out

on loan. Garaget also has a "democracy kit" that can be borrowed, including all the things people might need for political demonstrations and grassroots organising – a megaphone, microphone and loud-speakers, staple gun, coffee machine, projector, whiteboard, cutter, for example. The Garaget employee interviewed reported that the tool library works very well, but acknowledged that it is unclear whether tool lending is formally permitted according to the Local Authorities Act, as it could be interpreted as a public authority interfering with the free market. However, the Garaget employee argued that since there is a private hardware store in Malmö that lends out tools for free, the City should be able to do so too. He also explained that he definitely views these kinds of services as a future integral part of more libraries, "I think the libraries are spot-on places to work with collaborative consumption".

Garaget is located at the intersection of four different districts in the City of Malmö; a gentrifying area with new municipal co-houses, another area with many foreign-born residents and "one of the most dangerous streets in Sweden" (Hjertén, 2011) (according to media reporting), an upper-middle-class area and an industrial area. Thus, the specific location of Garaget makes it easy for different groups of people to meet. Garaget lends out the space for different evening activities 3–4 times per week after closing time and is frequently asked about new forms of activities or collaboration. As of 2016, Garaget has nine employees but many of its activities rely on the work of volunteers. In its first year Garaget had around 17,000 visitors, after which the number rose steadily every year until 2013, when it stabilised at around 100,000–120,000 visitors per year.[12] Garaget gathers statistics on the number of visitors and their gender, age and what activities they take part in. In 2015 51% of the visitors were women and 49% men. The visitors are of all ages, young and old, but there are fewer teenagers. The Garaget employee interviewed reported that the visitors have a wide range of ethnic and socio-economic backgrounds.[13] He explained that since Garaget is located near the housing area with many foreign-born residents, many of its visitors come from this area, but also from areas all over Malmö. He added, "It is probably the character of our activities that makes the space attractive to many different target groups". Given that Garaget has functions like societal guidance, legal guidance and guidance to newly arrived immi-grants, but also cultural activities (workshops for kids, reading groups, lectures, performances), the open creative workshop and the café, it manages to be relevant for many different groups. According to the interviewee, there are endless possibilities for providing more services and activities – the main obstacle is funding. In the coming years restructuring within the municipality might affect the budget for Garaget, but how and to what extent is currently unclear, which makes it difficult to plan activities for a longer period of time. The interviewee pointed out that Garaget can apply for external funding, but that these funding bodies are generally looking for "new projects" rather than well-functioning existing spaces like Garaget. However, he also argued that there are advantages with having the City as the owner, "it would take a lot to close down this kind of activity, in contrast to new projects that run on solely external funding for a year and are then closed down".

3.6. How to scale up the provision of sharing infrastructure

One of the main challenges mentioned in all interviews regarding sharing initiatives was how to scale up from pilot project and test-bed to build a robust integrated system for sharing of resources. For several years the Environmental Office has been active and quite successful in acquiring national and European external funding, which has enabled several projects for testing new things. However, according to the interviewees, this focus on externally funded activities has also meant that the City has at times prioritised getting test-bed projects rolling rather than long-term management of existing activities. A question that several of the interviewees raised is how the City of Malmö can provide support in

the long run and ensure that good initiatives do not just pop up and disappear. One of the head offi-cials suggested a need to apply new "business models" and coordinate funds, for example by pooling livelihood support funds and environmental support funds. Another interviewee argued that the City cannot run activities by itself, but can be part of forming the systems to facilitate sharing activities, for example through Internet services, information campaigns, educational events, or responding more efficiently to citizen-initiated projects. As one of the officials at the City Planning Office said, "We see a shift where more initiatives are coming from the citizens, that we have to be able to meet, that's nothing we can choose to do or not, we have to have a strategy to meet these initiatives".

The question is whether sharing infrastructure initiatives, like Garaget and STPLN, can go beyond being temporary islands to become a more stable part of a transition towards a more socio-environ-mentally just city. Experiences from the Malmö sites highlight a number of practical factors that are crucial for these types of sharing initiatives to become more influential and stable. First, the mere involvement and long-term financial support of the City is key. Several interviewees mentioned a tendency for external support to be available for "new" and experimental projects, initiated by citizens' groups or municipal officials, but that this support tends to be temporary. Second, the existence of a clear frame and rules for how citizens can become involved is critical. For instance, the Bike Kitchen has an established volunteer system and STPLN and Garaget have established clear rules on how and on what conditions citizens can use and develop the facilities. Third, the sites benefit from being able to house different types of content and sub-spaces that can change over time and cater to different societal groups. Garaget's principle is that it should house activities and functions that the users want and therefore the content is constantly shifting from hosting knitting workshops and language cafés to hiring out party costumes and expanding the set of tools. The same goes for STPLN, where citi-zen-driven initiatives like the Bike Kitchen can come to the space and develop their activities within the larger frame of STPLN. A fourth factor raised was the importance of political support and political stability. Several of the public officials mentioned that they only dare to develop new things, stretch traditional interpretations of the Local Authorities Act and support sharing initiatives because they feel that they have political backing to do so. Overall, despite the issues related to funding, the officials interviewed were optimistic, felt that they had political support and believed that they had a mission, calling themselves "catalysts", daring to do more than the law requires and developing new roles for the public authority, as captured in this quote by one of the head officials, "We have a Local Authorities Act that we need to relate to, but how can we try to push the boundaries of that?".

Finally, several of the interviewees mentioned a need for systems thinking, i.e. how to build systems for sharing, scale these up and make them into an integral part of the city. One example raised was to develop service points connecting mobility pools, libraries with tool lending and laundry services. Another example was plans for building new local recycling stations, initiated by the municipal waste company, which would function as larger nodes for swapping and sharing, and at the same time as new forms of public spaces. Two of the officials interviewed also reported an interest among the public libraries in Malmö in developing their activities to include sharing of more than books, e.g. spaces to produce and repair things. For example, the public library in the district of Lindängen has developed a maker space in collaboration with STPLN, while other libraries are lending out tools, just like at Garaget.

4. Analysis

4.1. Urban spaces for subject positions beyond the responsible consumer

The wider aim of building infrastructures for sharing resources was described by the City officials as a combination of supporting democratic ideals, such as trust between citizens, empowerment, social

integration and fair access to knowledge and resources, achieving environmental benefits in terms of using fewer resources and gaining economic benefits such as saving money for individuals and creating jobs. In terms of environmental aspects, two of the most frequently mentioned reasons were to encourage less material consumption and more efficient circular flows of resources. This resonates with Seyfang's (2011) perspective on sustainable consumption, i.e. providing infrastructure that broadens the possibilities from the outset for people to consume less, in this case via accessible infrastructure for sharing, repairing and making. However, these spaces could be seen as still invoking the responsibilities of individuals to take active part, rather than, for example, pushing environmentally responsible regulation for large-scale producers of goods and services. Measures on the local urban scale can nevertheless complement more systemic regulatory changes, so that there is not an either/or outcome.

Developing infrastructure for sharing was viewed by the interviewees as a way of combining social and environmental aims and of aligning long-term goals on resource efficiency and social justice with practical remedies to immediate problems that Malmö is facing – social polarisation, unemployment and the need of many residents to get by on a tight budget. In some of the interviews, "sharing" was presented as a solution to nearly all the problems in the city. However, it is important to emphasise that in order to deal with issues of segregation or unemployment, infrastructure for sharing and repairing could possibly play a small role, but should not be seen as a main strategy. It is also important to point out that far from all the initiatives undertaken in the name of the collaborative or sharing economy align with these wider socio-environmental aims. Indeed there are several examples of how the terms "sharing" and "sharing economy" are being used for quite different purposes (see the discussion around "share-wash", e.g. Bliss, 2015).

Nevertheless, the Malmö case study revealed an emerging planning practice around sharing and public infrastructure for sharing which can encourage a kind of thinking in planning that combines ambitions of less resource use and inclusive urban spaces. Sharing infrastructure sites such as STPLN and Garaget can also give indications about the (future) role of citizens. While the well-read, well-informed green individualist consumer may be the civic ideal, current practices at STPLN and Garaget point towards a slightly different role for citizens with practical knowledge and skills, knowing how to share, remake and fix things and act collaboratively. These sites could thus be viewed as opening up possibilities of subject positions and public spaces beyond consumerism and the responsible consumer as the desirable subject position (Soneryd & Uggla, 2015).

"The sharing society" was raised here as a possible guiding principle for future development and the future challenges that Malmö City will face, which were identified by the interviewees at Malmö City as continuing urbanisation, climate change, and a constrained economy. Moving the City towards smaller private residential living spaces and less car usage, but more generous sharing infrastructures such as "urban living rooms", swap rooms, local recycling, repair and exchange stations and bike-sharing facilities, was described as a way towards affordable and climate-smart urban living. Such sharing infrastructure nodes could, in the long run, be an alternative to the mainstream car-orientated shopping centre nodes and hence become new "infrastructure of provision". Importantly, however, this "new" infrastructure of provision is not an alternative grassroots' parallel infrastructure as in Seyfang's (2011) understanding, but rather part of the existing public infrastructure of provision that is being reshaped to enable sharing and remaking.

4.2. Making sharing initiatives inclusive

As described in the theory section of this paper, the term "hacking the city" is sometimes used (Schmidt, 2011). We suggest that Garaget and STPLN can be seen as "hacks" of conventional public infrastructure,

rather than something completely new. The hack means taking something that is already there and twisting it so that it becomes increasingly useful for everyday citizens. Garaget could be seen as a "hack" of the library – re-formulating the notion of the library as a place for lending books by adding a tool lending facility and opening up the entire space to be borrowed by anyone. Importantly, this hack does not replace the old function of spreading knowledge free of cost to citizens. Rather, it expands on that idea, with the wider aim of spreading practical knowledge by providing access to "tools for conviviality" (Illich, 1973), such as sewing machines, or tools for fixing things independently or together with others, without users having to purchase things on the market.

STPLN could be seen as a hack of the traditional civic centre, providing a site for citizens to meet not only for debates, reading circles or events, but also for making and repairing things. This is not about replacing the traditional public infrastructure, but rather tweaking it and slightly changing its function. We argue that these changes in the infrastructure of provision may not be grand but, as Seyfang (2011, p. 171) points out, "even though small scale at present these alternative infrastructures might be important carriers of vision".

In relation to work for a more socially just city, the Garaget and STPLN sites are examples of democratisation of access to resources (skills, tools and spaces for repairing and making). Initiators and staff at Garaget and STPLN deliberately work to include a wide array of societal groups, making the spaces welcoming and arranging specific activities that cater for different interests. Both Garaget and STPLN appear to have found a balance in being open for self-organised activities that might require substantial efforts by the users, whilst also offering "ready-made" activities and functions that need little knowledge or engagement from the users. The choice of location in the city is also important in order to attract different societal groups. Moreover, STPLN has specific mobile outreach activities, particularly in socio-economically disenfranchised areas. Without the involvement and commitment of the public authority to serve all, not least the disenfranchised, spaces like STPLN and Garget would most likely be more socially homogeneous. As Schor et al. (2016) have demonstrated, grassroots and volunteer-run maker spaces and sharing platforms tend to serve like-minded and well-organised citizens. Hence, the involvement of the local authority appears to be key to making sharing economy practices socially inclusive.

5. Conclusions

The case of Malmö and its work with sharing infrastructure provides insights into how local authorities in other areas can make progress in their socio-environmental planning. In the current discourse on planning for sustainability, the focus is generally on eco-profiled housing, mixed-use planning, preventing sprawl and facilitating non-motorised transport (Haas, 2012; Wheeler & Beatley, 2014). These are relevant strategies, but we argue that helping citizens to share, make and repair resources is also important for local authorities if the socio-environmental impacts of (increasing) levels of consumption are to be handled. This paper points out that it is important for citizens not only to be well-read, educated individuals, fit for jobs in the knowledge economy and good consumers, but perhaps increasingly also to have practical skills and knowledge of how to live a good convivial life, even on a tight budget, and together with others make, repair and share things. Providing infrastructure for citizens to acquire such skills might become increasingly important in a future marked by climate change and limited environmental resources.

Furthermore, building on Seyfang (2011), we argue that it is not only up to grassroots groups to build up alternative parallel "infrastructures of provision". Local public authorities can, and should, play

a key role in reshaping infrastructure and routes of provision, to encompass possibilities for citizens to organise, make, repair and share resources in a socially inclusive manner. Developing infrastructure for sharing and repairing is perhaps particularly relevant in contemporary contexts marked by economic constraints, both for citizens who need to get by on less and for municipalities when funding is not available for grand infrastructure projects. Both STPLN and Garaget can be interpreted as low-budget "hacks" of existing public infrastructure which, through conscious strategies of co-production with users, have come to serve as spaces for sharing, reskilling, making and repairing and, simultaneously, as inclusive public spaces. We suggest that a possible future role for local planning authorities lies not only in meeting and responding to citizens' initiatives that pop up but also in setting up more stable frames and basic infrastructure that can house different and varying citizen-managed activities. These frames, in the form of public infrastructure such as premises and basic long-term economic support, can provide space for differing uses and at the same time promote long-term engagement, enabling less well-organised citizens to take part.

The findings of this paper contribute to discussions on how collaborative/sharing-economy practices can become more inclusive, as well as the potential role in this of local government. To date, commercial global sharing platforms and at times also grassroots collaborative economy platforms such as non-profit food swaps and community-run maker spaces have tended to exacerbate social segregation. While well aware that the progressive line of reasoning found in Malmö might not correspond to the planning agendas in local authorities elsewhere, we nevertheless argue that there is something to be learnt from Malmö in that the support and active involvement of the local authority can be a way to make collaborative economy spaces more inclusive and democratic. The contemporary hype around innovations and the disruptiveness of the sharing economy is also something that is relevant for public planning and can be used to forge new roles for local authorities and planning practice in enabling subject positions beyond the responsible consumer.

Notes

1. The commission is known as the Malmö Commission, or formally, "The Commission for a Socially Sustainable Malmö", http://malmo.se/Kommun--politik/Socialt-hallbart-Malmo/Kommission-for-ett-socialt-hallbart-Malmo/Commission-for-a-Socially-Sustainable-Malmoe-in-English.html.
2. The Journal *Miljöaktuellt* conducts a yearly ranking of Sweden's "Best Environmental Municipality". Malmö was number one in 2015, see http://miljoaktuellt.idg.se/2.1845/1.567251/har-ar-sveriges-basta-miljokommun.
3. Malmö has been governed by the social democratic party since 1919, with only two exceptions (1985–1988 and 1991–1994) when a liberal-conservative coalition was in power.
4. http://malmo.se/repamera
5. In November 2015 an architectural competition for Sege Park entitled "Sharing for Affordable and Climate Smart Living" was launched: http://malmo.se/English/Sustainable-City-Development/Sege-Park/Sharing-for-Affordable-and-Climate-Smart-Living.html.
6. http://www.malmokommissionen.se.
7. With particular reference to the TED talk by Neil Gershenfeld, the father of Fablab: http://www.ted.com/talks/neil_gershenfeld_on_fab_labs.
8. STPLN website, translated from Swedish: http://stpln.se/ (retrieved 8 May 2015).
9. The initial funding came from a three-year grant from Allmänna Arvsfonden, a foundation gathering inheritances from people without close relatives.
10. See http://www.cykelbiblioteket.se/ (retrieved 14 February 2016).
11. These other funding bodies are Allmänna Arvsfonden – a foundation gathering inheritances from people without close relatives, ABF – an organisation for adult education, Conrad – a tech company, and Trafikverket – The National Road and Transport Authority.
12. Statistics from Garaget via e-mail 15 September 2016.
13. Described in an e-mail from 15 September 2016.

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Project leader, City planning office, Malmö City, April 8, 2015

Employee at Garget, Malmö, April 8, 2015

Project leader STPLN, Malmö, April 14, 2014

Co-initiator, The Bike Kitchen, STPLN, Malmö, June 10, 2014

Employee, The Bike Kitchen, STPLN, Malmö, April 14, 2014

Employee, Fabriken, STPLN, Malmö, April 14, 2014

Project leader, Environmental administration, Malmö City, June 10, 2014