



URBAN SHARING

in AMSTERDAM

City report no 1
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1 INTRODUCTION

This city report is the result of a Mobile Research Lab [1] conducted in the frame of the five-year research programme Urban Sharing [2], funded by the European Research Council (2018-2023). The Mobile Research Lab involves a combination of methods, including case studies, interviews, observations, expert panels, and in-situ field work. This report presents insights gained by the team of seven researchers from the International Institute of Industrial Environmental Economics at Lund University, Sweden, who collectively wrote the report: Oksana Mont, Andrius Plepys, Yuliya Voytenko Palgan, Jagdeep Singh, Steven Curtis, Lucie Zvolkska and Ana Maria Arbelaez Velez.



Case urban sharing organisations (USOs) are chosen by scouting online databases (e.g. the Sharing Cities Network, the Mesh, Shareable Network Hub, Collaborative Consumption and Sharing.org) and homepages of sharing organisations, analysis of academic and grey literature, and interviews with experts and practitioners.

Purposeful and snowball sampling [3] was used for choosing case USOs, guided by several criteria: 1) USOs that have the greatest potential to reduce their environmental impact through sharing, e.g. those that share physical goods, e.g. vehicles and rides, accommodation and physical goods; 2) physical goods with high environmental, social or economic impact, e.g. consumer goods, which can potentially be reduced through different organisational models of sharing (peer-to-peer/business-to-consumer as well as for-profit/reciprocal/free); 3) sharing sectors with various types of engagement from cities and other actors (coercive, enabling, supportive, neutral and inhibiting) and different institutionalisation pathways.

These three sectors vary significantly in terms of prominence in the city, in their reputation among the public and other actors, e.g. city government, and have different types of impacts, e.g. social, environmental or economic.

According to our strict definition, sharing business models support temporary use of idling assets [4]. This means that peers share resources they already have, i.e. the resources were not purchased for pecuniary purposes for rental or sharing. Ownership stays with the resource owner, and is not transferred to a new owner in a series of subsequent users, as in the case of second-hand markets. Sharing of resources takes place between resource owners and resources users in a peer-to-peer (P2P) business model. We are investigating USOs in which users may have different motivations for sharing their idling resources: pecuniary, non-pecuniary, or reciprocal. B2C cases are also analysed as a reference point for the P2P sharing organisations. In B2C cases a company owns resources, not peers.

The Mobile Research Lab, involving seven researchers from Lund University, took place on 7-12 April 2019. During the preparatory phase and the visit, 25 interviews were conducted. The actors interviewed comprised experts from different departments of the city of Amsterdam, sharing organisations from different sectors (mobility, accommodation and asset sharing), third-party organisations, users of sharing organisations, and researchers. The transcribed interviews generated more than 300 pages of material for analysis. A workshop, involving researchers working on the sharing economy, was arranged in collaboration with the Copernicus Institute at Utrecht University, and the latest insights and conclusions were presented and discussed. Several

types of collaborations resulted from the workshop. Some interviews also led to commitments for further collaboration with several sharing organisations.

The report is structured as follows. Section 2 describes the city context of Amsterdam that shapes the sharing economy in the city. Section 3 presents a short overview of the sharing economy in Amsterdam, including people's levels of awareness and acceptance. The subsequent three sections describe our findings and observations from the three sectors of the sharing economy: sharing of space, mobility and physical goods, focusing on the drivers and barriers relating to USOs and the sharing economy in general, associated sustainability impacts, impacts on incumbent sectors, and the institutional and regulatory context of each sector. Section 7 analyses governance mechanisms that the city council employs for engaging with the sharing economy, and section 8 offers some concluding remarks.







2 CITY CONTEXT

2.1 Governance structure

2.1.1 CITY GOVERNANCE STRUCTURE

Amsterdam is the capital of the Netherlands [5]. It is also the largest city, governed by a directly elected city council, a municipal executive board and a mayor (*burgemeester*) appointed by the national government [6]. The mayor is a member of the municipal executive board, but also has individual responsibilities in maintaining public order. The city council decides on the general policies of the city, while the College of Mayor and Alderpersons is responsible for daily operations and policy implementation. The city is composed of seven districts: Centre, Nieuw-West, Noord, Oost, West, Zuid, and Zuidoost, each managed by a district committee. The district committees, together with the College of Mayors and Alderpersons and the city council, form the Amsterdam city government. The city council is the highest governing body and consists of elected representatives of the people of Amsterdam [7]. Amsterdam is subdivided into 15 boroughs.

2.1.2 CITY REGULATORY POLICIES FOR SHARING

Amsterdam is a city whose sharing economy is varied and dynamic. The arrival of large international companies, such as Airbnb, and recently some bike-sharing companies, e.g. Mobike and Ofo, have led to negative externalities associated with the sharing economy if left unregulated. The city administration is therefore developing and testing various policies, ranging from supporting and enabling to prohibiting, depending on the nature and scale of the impact created by the various sharing platforms (Int #1).

The first regulations for holiday rentals were introduced in 2014, followed by a sharing economy action plan in 2015. The plan aimed to stimulate the sharing economy, to lead by example, to ensure the sharing economy serves all citizens, to develop sufficient rules and regulations, and to establish Amsterdam as a leading sharing city [8]. Issues related to the sharing economy

were initially addressed by the Department of Economic Affairs. However, in view of the growing complexity and understanding of the sharing economy, many other departments became engaged with the sharing economy, including the Department of Innovation and the Department of Mobility, working on aligning the sharing economy with city visions and regulations.

Today, multiple new governance issues are on the city's agenda. These are specific to sharing sectors and are often intertwined with the traditional existing areas of governance, such as sustainable transport, parking regulations, air pollution, traffic safety, etc. Shared accommodation and shared mobility solutions are the two sectors of Amsterdam's sharing economy that have received most attention from local policy makers so far.

2.2 Geography and demographics

2.2.1 TOPOGRAPHY AND URBAN SPRAWL

Amsterdam is low and flat, making it ideal for cycling. The Netherlands has a mild, maritime climate, similar to England. About half of the surface of the Netherlands is less than 1 m above sea level [9]. To prevent the Netherlands from flooding, the country developed a vast system of dikes and pumping stations.

Amsterdam is an intensely urbanised city, comprising 219.4 square kilometres of land with 2626 houses per km [10]. Parks and nature reserves account for 12% of Amsterdam's land area. The population density is 5160 inhabitants per km², compared to 510 inhabitants per km² on average in the Netherlands [11]. High population density implies that the city faces challenges with the lack of space for new accommodation, transport, infrastructure and other areas of public use. The city is steadily growing by developing property in new areas, repurposing old industrial infrastructure, and optimising the use of existing spaces. Compromising and finding solutions to the conflict between use of space for transport and parking vs. space for accommodation and other activities, thereby ensuring high quality of life, is one of the city's most important agendas.

2.2.2 SOCIO-DEMOGRAPHICS

On January 1, 2018, Amsterdam had a population of 854,316 within the city boundaries and about 2,5 million in the metropolitan area [10]. There were 432,632 homes in Amsterdam, approximately 5000 more than the year before [10]. The population has increased greatly in the past decade. For example,

between 2009 and 2011 the population increased by 25,000 people, compared to an increase of less than 1000 per year in the previous decade [12]. Accelerated growth in Amsterdam is due to foreign and domestic inflow to the area [12]. 2018 was the first year in which the growth in the number of inhabitants slowed, with an increase of 9300 people.

The level of education of the citizens of Amsterdam, defined as the percentage with degree level or higher, was 42% in 2019 [13].

In early 2018, the racial and ethnic makeup of Amsterdam was 46.6% Dutch and 53.4% of foreign ancestry. Individuals of non-Western origin account for 35% of Amsterdam's population and over half of all children in the city. The four largest groups of non-Westerners in Amsterdam are from Surinam, Antilles, Turkey and Morocco [10]. Non-Westerners are concentrated in certain neighbourhoods, such as Nieuw-West, Bijlmer, Zeeburg and Amsterdam-Noord. Amsterdam has 176 different nationalities, which makes it one of the most diverse cities in the world.

2.2.3 TOURISM IN THE CITY

Tourism in Amsterdam is growing faster than ever. The number of visitors in 2018 was 13% up compared to 2017, and was third in Europe after Florence and Brussels. In 2018, the city received 18 million tourists, and the figure is projected to grow to 42 million by 2030 [14]. Although there are several economic benefits, the growth in the number of tourists also has drawbacks. The number of tourists per inhabitant and per square mile is higher than in many other European cities [10] and many citizens perceive that their city does not belong to them anymore [15]. Judging from different discourses in the media and online forums, there is a growing discontent with many sharing platforms, as city dwellers cite city congestion and overtourism as visible negative impacts on their everyday lives [16]. To combat this development, a recent report from tourism officials outlined a new direction away from destination promotion in advertising towards destination management, focusing on maintaining livelihoods for people living there [17] with the goal "for every Dutch person to benefit from tourism by 2030" [17].

2.3 Economy

2.3.1 ECONOMIC VIBRANCY

With its GDP (PPP) reaching USD 170 billion, the Amsterdam Metropolitan Area is one of the five fastest growing economies in Europe. The city is among

the top four Dutch metropolitan areas (along with Groningen, Eindhoven and Utrecht) and among the top 20% in the OECD in terms of GDP per capita. Metropolitan areas in the Netherlands account for 54% of national GDP and 48% of employment. Between 2000 and 2016, they generated 64% of the national GDP growth, half of which was generated in Amsterdam [18].

The financial sector is one of the important sectors in the city, followed by a range of other professional service sectors, such as transport, tourism and retail. Amsterdam is the financial and business capital of the Netherlands. It is ranked the fifth best European city in which to locate an international business, surpassed only by London, Paris, Frankfurt and Barcelona. It was ranked tenth in terms of economic vibrancy and competitiveness on the 2018 Global Liveable and Smart Cities Index [19]. Many large corporations and banks have important offices or headquarters in Amsterdam, including AkzoNobel, Heineken International, ING Group, ABN AMRO, TomTom, Delta Lloyd Group, Booking.com, Heineken and Philips.

2.3.2 JOBS

In the last ten years, the number of jobs in the city has risen by an average of 2.4% per year. The labour force has also increased, but less rapidly (1.6%) [10]. In some sectors there is a shortage of labour, and increasing numbers of commuters are travelling to work in the city. In August 2019, the unemployment rate in the Netherlands dropped to 3.5%, a record low figure for the period 2003-2019 [20].

2.3.3 INCOME

According to the Centraal Planbureau (CPB), in 2019 the median gross annual income for a person working in the Netherlands is EUR 36,000 [21]. Gross average salaries in Amsterdam are generally higher, averaging EUR 48,197. Incomes of popular and higher paid occupations, such as software-related professionals, average between EUR 48,837-58,682 annually [22].

Amsterdam is an expensive city to live in, when judged by the cost of living, cost of public transport, and transport and infrastructure categories [23]. In 2015, the average disposable income per household in the city was EUR 36,800, and the average full-time income per person was EUR 33,500 [10: p. 19]. Nevertheless, the cost of living combined with the generally higher incomes in Amsterdam make the city quite affordable, with the inhabitants enjoying a high quality of life.

2.4 Infrastructure

2.4.1 TECHNOLOGY READINESS

Technology readiness is one of the most critical infrastructural aspects in the sharing economy. The Netherlands ranks highly in terms of its infrastructure for internet quality (with average internet speed of 17 Mbps) [24]. “The Amsterdam Metropolitan Area (AMA) is a leader in digital transformation, being a thriving tech hub, one of the most digitally connected economies in the world and one of the largest Internet hubs (AMS-IX)” [25]. In 2017, 98% of Dutch households had internet access, against a European average of 87% [26]. Around 84% of the Dutch population used a smartphone outside their home or work, compared to a European average of 62%. In 2018, smartphone penetration rate in the Netherlands was a 87.69%, and by 2024, the number of monthly active smartphone users is projected to reach 16.64 million individuals [27]. The percentage of Dutch people using laptops, notebooks and tablets is 54%. In 2016, the percentage of the Amsterdam population with a tablet, laptop or fixed PC in their household was 62, 84, and 48, respectively. Around 84% of the population in Amsterdam had access to a smartphone in 2016 [10].

2.4.2 MOBILITY INFRASTRUCTURE

The infrastructure for mobility in Amsterdam comprises both public and private transport. This includes buses, metro, trains, ferries, trams, cars, bike and scooter sharing services, regular car hire services and shared car mobility service providers (e.g. Uber).

Each day the inhabitants of Amsterdam travel about 11.65 million kilometres. About 35% (4.15 million km) is by public transport, 32% (3.9 million km) by passenger cars, 22% (2.3 million km) by bikes and scooters, and 4% (460,000 km/day) by taxi, Uber and carpooling [28].

- **Public transport.** Travel by public transport can be further divided into train 38%, metro 27%, tram 22% and bus 13%;
- **Cars.** Most of the distance travelled in passenger cars involves approximately 234,000 passenger cars. The remaining 3.5% of passenger car distance is travelled by shared vehicles provided through various sharing schemes;
- **Bikes.** The distance travelled on bikes and scooters is 2.3 million km/day. Four in five residents aged 12 years and older has a bike. There are nearly 900,000 bikes in Amsterdam but the number of daily

cyclists is estimated at 690,000, of which 661,000 are owned bikes (total distance 2.2 million km/day or 95.6%), 18,000 are leased 'swap bikes' (60,000 km/day or 2.6%), 9,000 are shared bikes (30,000 km/day or 1.3%) and 2,150 are rented OV-Bikes provided by the public transport organisation (7,000 km/day or 0.3%) [29-31]. The shared forms of bike/scooter use jointly constitute about 4% of the daily biking distance [32]. The use of the bicycle is increasing, and is expected to continue to increase further in the coming years. The use of space for (parked) bicycles is also increasing. Around 350,000 bicycles are parked within the circle formed by the A10 ring road [10].

- **Taxi.** Daily taxi services are provided by approximately 6000 taxi drivers and further 2100 drivers operating in different sharing platforms, mainly Uber [28, 33]. Assuming similar driving distances, this means that about 26% of daily taxi distance is covered in Uber cars.
- **Walking.** The remaining 7% (or 840,000 km/day) of travel in the city involves walking.

The cost of public transport in Amsterdam is EUR 3 for a one-way ticket and EUR 90 for a monthly pass. The cost of hiring a taxi is EUR 2.4/km, with a EUR 5 starting cost and EUR 40/hour. The government collects tax on private cars, excise on petrol and other mineral oils. There are 8 million cars on Dutch roads, and almost half of the Dutch population owns a private car. Amsterdam has a congestion level (time of suboptimal movement) of 20-22%, which is not at all congested (ranks 129th globally). Indeed, congestion in the Netherlands is not a problem even on the European level. The prices for street parking in the city centre of Amsterdam are EUR 5 per hour and EUR 30-45 per day. There is no free parking in the centre. There are provisions for park and ride on the outskirts of the city that involve public transport for the journey into the centre.

2.4.3 ACCOMMODATION

The composition of the housing stock in Amsterdam has been changing in recent years, with more owner-occupied homes, more private sector rentals and less social housing [34].¹ The proportion of social housing has fallen over

¹ Social housing rentals (sociale huurwoningen) are rental homes that cost EUR 720.42 or less in base rent per month (2019 threshold) and they are regulated. "The landlord is not permitted to charge more rent for sociale huurwoningen than the property is worth according to the points system. The annual rent increase for social housing is also subject to a maximum limit" [34].

the past ten years, from 50% to 39%. The proportion of social rental housing also decreased for private landlords, from 18% to 13% [10]. Housing prices in the city are rising rapidly. An average home in Amsterdam is about 90m² and costs EUR 450,000 , which is more than EUR 6,500 per m² (mid-2018 data) [35].

Amsterdam is a city with a high level of densification. It will have to build 300,000 new units by 2040 to accommodate its growing population. Many disused or underutilised properties (e.g. military installations, older hospitals) have already been converted into housing, and there are still some reserve areas in the form of empty office and factory buildings. Combined with higher densification their use would allow for 40,000 additional housing units. Providing the remaining 260,000 units is much more of a challenge, as it may require even more densification, demolishing 19th century areas in good condition, construction on the existing historically protected green areas, or densifying Almere and the other new towns outside the administrative boundaries of the city. In the (extreme) case of Amsterdam, the ‘normal’ practices of densification would not be sufficient to resolve the challenge of dynamic growth. Even so, densification (and keeping the already existing dense areas liveable) is unavoidable.

2.5 Innovation and sustainability

Amsterdam has a vibrant entrepreneurship and innovation culture (Int #1). It ranks third in the European Digital City Index 2016 [36] and fifth in intellectual capital and innovation in the PwC’s global Cities of Opportunity report [23]. According to the CITIE study, Amsterdam’s size facilitates innovation and experimentation with policy conditions for both innovation and entrepreneurship [37]. The city has been investing in innovation through such flagship programmes as the Smart City initiative [38], with a large number of projects ranging from experimentation with IoT, digital data handling in cities, to rooftop innovation and circular cities. Another initiative supported by the city government is StartupAmsterdam [39], which is a public-private partnership hub that unites and facilitates entrepreneurship among innovators, start-ups, tech companies, incubators, universities, venture capitalists, accelerators, multinationals and scale-ups. Another initiative is TechLeap.NL, which aims to support the Dutch Startup Ecosystem focusing on capital, talent, and market in relation to rapid growth [40]. At the same time there is also room for improvement according to the ranking on “Ease of doing business” in a study on Cities of Opportunity [23], in which Amsterdam is ranked number 16 among

31 global cities. This ranking is based on the barriers caused by existing regulations, time and cost when an entrepreneur is to start a business.

Amsterdam occupies fourth place amongst the world's most successful cities, as ranked in PwC's global Cities of Opportunity report against 30 other cities [23]. The city is ranked first for Health, Safety and Security, as well as in Sustainability and the Natural Environment. However, it is ranked eighth in terms of environmental friendliness and sustainability and sixth in terms of domestic security and stability by the 2018 Global Liveable and Smart Cities Index on 78 World's Major Cities [19]. Amsterdam "is one of the smartest cities in the world. It is not just about technology, but even more so about a mix of smart government, businesses and citizens, interacting together in an ICT enabled community [23: p. 6].

Amsterdam has an environment-conscious population. The city is a beacon of bike use, and is also known for the high level of recycling of its municipal waste. According to the municipal waste and energy company, 99% of the municipal waste in Amsterdam is reused and recycled either into new raw materials or converted into electricity and heating [41]. Similar to the Recycled waste category, Amsterdam also ranks among the three top cities in Air Pollution, although air pollution is the number three health risk [42]. The city ranks equal 16th, alongside Hong Kong and Rio de Janeiro, in terms of traffic congestion.

2.6 Socio-cultural conditions

The overall liveability ranking in 78 cities places Amsterdam fourth. It is ranked first in term of socio-cultural conditions by the 2018 Global Liveable and Smart Cities Index of 78 World's Major Cities [19]. Amsterdam is known for its live-and-let-live attitude and acceptance. It reflects well the overall Dutch cultural traits as measured according to Hofstede's Cultural Theory model [43] (Figure 1).

The Netherlands scores low on the power dimension (score of 38), i.e. Dutch people like being independent and equal, and dislike hierarchy. This facilitates sharing in the society. Employees expect to be consulted by management, and communication is direct and participative. The Netherlands scores very highly as an Individualist society (score of 80), in which individuals are expected to take care only of themselves and their immediate families. This trait goes against the rhetoric of the sharing economy, some parts of which build on ideas of community and participation. At the same time, if people see sharing as a solution to some of their daily problems, then being Individualistic might be conducive to sharing.

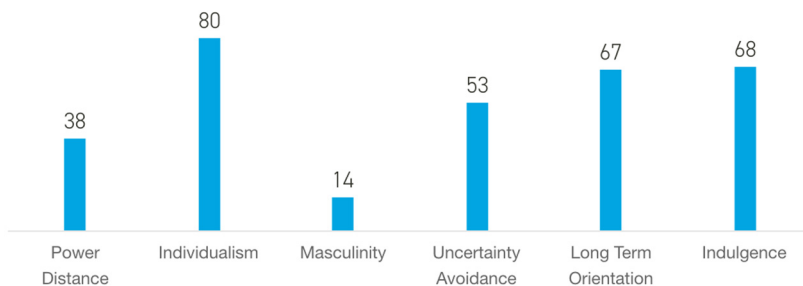


Figure 1
Dutch cultural traits as measured according to Hofstede's Cultural Theory model [43]

On the Masculinity-Femininity dimension, the Netherlands scores very low (14), indicating that the dominant values in society are caring for others, quality of life and life/work balance. Care for life/work balance may support ideas of sharing if this means that people would rather share and gain access to what they need from others rather than pursue longer working hours and higher incomes. The Netherlands scores 53 on the Uncertainty Avoidance dimension, exhibiting a slight preference for avoiding uncertainty. The well-functioning trust, referral and feedback mechanisms featured on sharing economy platforms are very important. The Netherlands receives a high score of 67 in the Long Term Orientation dimension, which means that the Dutch are pragmatic, easily adapt traditions to changing conditions, have a strong propensity to save and invest, and have high perseverance in achieving results. Pragmatism and adapting traditions to changing conditions may be also seen as favourable for the sharing economy, questioning in many ways established norms ranging from relations with strangers to the institution of ownership. Openness to technological innovations is seen as an important factor in understanding the sharing economy in Amsterdam. The Netherlands scores highly on Indulgence (68), placing a higher degree of importance on leisure time and spending money as they wish.





3 URBAN SHARING IN AMSTERDAM

3.1 The landscape of urban sharing in the city

Amsterdam boasts a vibrant sharing economy, including numerous car-sharing and rental organisations, bike sharing systems, accommodation sharing and initiatives for exchanging, sharing and reusing physical assets, such as clothes and tools. It hosts both peer-to-peer and business-to-consumer platforms, for-profit and non-profit (Int #4).

“

in Amsterdam you see a lot of platforms, smaller community platforms, a lot of them are very active but also the bigger ones that are more profit driven. In all kinds of fields, so it can be a new payment platform system, it can be a new sharing of baby clothes system, for instance. You see a lot of that when trying to do business in Amsterdam. I think it's still getting bigger. I also think that a lot of existing companies see the benefits of this new model. So, for instance the transport and delivery business for delivering packages, you see that they are trying to get into this". (Int #1)

Amsterdam is also a cradle of a networking organisation ShareNL, which in 2015 declared the city of Amsterdam a Sharing City (Int #18). ShareNL offers various services to actors in the sharing economy, including but not limited to USOs and city government. ShareNL also founded the Sharing Cities Alliance, a foundation that aims to promote connections and policy learning between cities [44]. In 2016, Amsterdam hosted the first Sharing Cities Summit.

The City of Amsterdam and the College of Mayor and Alderpersons have initially been seen as open and supportive to sharing organisations (Int #4&19). At the same time, Amsterdam is a city that closely monitors and actively responds to the benefits and challenges posed by the sharing economy. As the sharing economy in Amsterdam has grown, less favourable side effects have become visible, such as congestion and lack of affordable housing. Together with impacts on the city, the sharing economy has disrupted many established industries and forced some of them to diversify by including sharing offers. The city government is therefore engaged in developing suitable regulatory frameworks that would help reduce undesirable effects.

Besides the large international players of the sharing economy, i.e. Airbnb and Uber, Amsterdam hosts many smaller sharing initiatives, such as Peerby, Airdnd, and Nextdoor [45].

““

most neighbourhood sharing is run by Facebook groups, WhatsApp groups". Then there are "platform co-ops, they were really presented as the solution against the evil Ubers but most platform co-ops are a single stakeholder cooperative". (Int #4)

In turn, urban sharing organisations trigger the establishment of other organisations, such as lambnb [46], which offers a service of managing Airbnb renting, and 60Days [47], a courier company that facilitates the sharing of goods. There are also ongoing activities for free-of-charge sharing of owned physical assets among public authorities, including vehicles, offices, tools and other items available at the city wharfs.

The landscape of the sharing economy is changing fast, and ShareNL has been commissioned by the municipality of Amsterdam to develop an assessment framework and decision-making model that may help public authorities decide which urban sharing organisations they should support.

“

To help authorities decide whether a new initiative requires government intervention, and what kind, a process wheel and a checklist toolkit are being developed by ShareNL.” (Int #2)

The main impacts to be measured here are social and economic, but the environmental impacts of sharing organisations are excluded from this assessment. However, environmental assessment of the sharing economy is something that needs to be conducted soon, since Amsterdam is facing several climate and environmental challenges that the sharing economy can potentially help to mitigate. In particular, energy transition and reduction of waste volumes have been identified as the two most important challenges that the city is facing in the circular innovation programme (Int #1), which encompasses the sharing economy.

3.2 Public perception of urban sharing

Public perception of the sharing economy has changed over the years. In 2013, around 10% of the population of Amsterdam said they were comfortable sharing something with a stranger, but by 2016, this number had increased to 32%. People who were mostly willing to share were between the ages of 20 and 45 [48]. Recent estimates suggest that up to 84% of the population are now happy to share (Int #2). Sixty percent of the people who had made use of sharing platforms (and who considered this transaction a form of sharing) had paid for the goods or services.

“

Our research is ... is from 2015 and 2016. ... you see that people are very willing to share but mostly they know about the big tech giants. So Airbnb, Uber - everybody knows, but not a lot of people know about the smaller community platforms yet. So, it really depends on which platforms you are talking about or which sharing concept you are talking about”. (Int #3)

Large sharing organisations have their own marketing and sales departments that work professionally on promoting and increasing awareness about their products and services to specific groups of customers. Non-profit or community platforms do not have such resources, and find it is hard to increase awareness about their businesses. In our research we did not come across any organisation that would represent the interests of non-profit USOs in Amsterdam, like People Who Share in London and Qui Share in Berlin.

Elderly people and people with low connection to the digital world also usually have lower awareness of the sharing economy.

“

They only see in the media certain kinds of platforms and they just think: “Oh, this is not for me because I don’t own a car, or I don’t own a house.” (Int #18)

However, the city is working on increasing the level of awareness among the elderly, using, for example, Stadspas, which is an initiative to connect different sharing platforms to the City Pass. The pass offers a means to introduce around 180,000 residents (low-income and elderly groups) to the sharing economy. Increasing their familiarity with sharing platforms is expected to boost their use of the platforms beyond mobility. This can benefit City Pass holders, both as providers and as customers (not having to buy things but loaning them via the platform instead). At the same time, there are many people engaged in less formal ways of sharing:

“

And sometimes you also have people who just do it, you know, they just share their stuff with their neighbours, or they just use the app, not knowing that we frame it as a sharing economy”. (Int #1)

The few studies on acceptance of the sharing economy in Amsterdam reveal differences in motivations between socio-demographic groups, between resource owners and resource providers, and in particular between sectors:

mobility, accommodation, and tools sharing [49]. Lately, however, the sharing economy has tended to generate a somewhat negative image, associated with various adverse impacts of sharing. These include cluttering of the city with free-floating shared bikes or short-term accommodation rentals reducing the availability of long-term rental accommodation (*Int #17&19*).

A relatively new phenomenon in Amsterdam is the emergence of the so-called platform and gig economies. The platform economy enables small-scale communal sharing initiatives outside large for-profit platforms [50]. The gig economy offers services from non-professional individuals to other individuals, and is often connected to sharing organisations [51]. For example, Airbnb is associated with an entire new type of business that cleans and maintains Airbnb apartments (*Int #21*).

The emergence of these platforms affects the types of terms and definitions used by USOs themselves, city officials and the general public. There is a clear trend towards using the term 'platform economy'. According to some, more mature cities tend to use the term 'platform economy' more than the term 'sharing economy' (*Int #9*). The new city board that took office in 2018 made a decision to use the term 'platform economy' in its future documents (*Int #21*). Many interviewees also stated that the sharing economy overlaps somewhat with the circular economy, the gig economy and the collaborative economy.







4 SPACE SHARING IN AMSTERDAM

Space sharing includes short-term accommodation (Airbnb, Booking.com), parking (Mobypark), office and storage space (Djeepo) rentals, as well as non-profit forms of accommodation sharing (Couchsurfing or BeWelcome). The multi-national giant Airbnb is a dominant space sharing player in Amsterdam (with 20,000 listings) and has attracted a lot of attention from the local citizens and politicians alike due to its disruptive impacts in property and rental markets. Booking.com (with 1000 listings), which is viewed by some as Airbnb's rising competitor, is headquartered in Amsterdam. However, this platform specialises in hotels and professional tourist accommodation, and only a very small number of 'homestays' are available on the platform in Amsterdam. As regulation tightens around short-term rentals, it will be necessary to monitor whether the rentals are becoming more evenly distributed across various for-profit platforms. Local-based space sharing platforms are represented by Djeepo, which specialises in storage space sharing, and Mobypark, a platform for car parking space sharing.

4.1 Drivers and barriers to space sharing

Like other large cities, Amsterdam is experiencing fast urbanisation and a rapidly increasing population. This is putting the existing housing market under pressure and causing a housing shortage. An increasing cost of living associated with the housing shortage has politicised space, and discussions are ongoing on how it can be best utilised. The tourism industry is believed to be one of the factors contributing to the housing shortage and the increasing living costs. Amsterdam hosts nearly 17 million tourists annually, and the number of overnight stays grew by 5.1% in 2018 [52]. In light of the steady influx of tourists to Amsterdam, many of whom are associated with stag and hen parties, there is a strong political will to reorient the current tourism development.

“

Especially in Amsterdam, we have a huge problem at the moment that we are a very popular city. So, a lot of tourists come here and people that live in the city centre experience this as a very busy city and they are kind of feeling “I don’t live here anymore”, “I live here but I am kind of overwhelmed with all the visitors here”. So, we are trying to find a balance between the visitors and people living there.” (Int #1)

To make Amsterdam a more liveable city, the city government has stopped issuing licences to hotels and hostels. There is also a plan to move from high-impact, low-expenditure tourists to low-impact, high-expenditure visitors. As a result, the number of tourists is exceeding the number of hotel beds available in the city [53].

“

[...] in Amsterdam, they are also trying to stop [...] building new hotels. So they don’t want to have any growth in tourists.” (Int #4)

Traditional tourist accommodation remains the primary option for tourists. The total number of hotel rooms in Amsterdam is around 50,000. In contrast, there are around 11,000 Airbnb rentals in Amsterdam [53]. It is estimated by Colliers that, compared to traditional hotels and hostels, Airbnb’s share of short-term tourist accommodation market in Amsterdam is 10% [54]. Other rental channels include HomeAway and Booking.com.

“

Everybody was like: “Oh, there are so many tourists because of Airbnb” but it’s not true because there are so many more hotels.” (Int #3)

Another hindering factor to accommodation sharing comes from a city-wide regulation on short-term rentals. Starting in early 2017, the Airbnb system is automatically limiting entire home listings in Amsterdam to 60 nights per calendar year. On 1 January 2019, the cap was reduced to 30 days. Airbnb was willing to set the 60-day cap, but is less interested in collaborating with the city on enforcing the 30-day cap.

““

It's also more intrusive if somebody is renting out their house and it's next to you [...]. If you're living next to a hotel you know what's happening and there's always doormen watching. So, there's a difference in how people experience it, when there's a hotel as a neighbour or there's a holiday rental apartment. So, our main politicians, they've cut down the 60-day limit to 30 days.”
(Int. #3)

The city government has the agency and power to regulate holiday rentals. Since September 2017, landlords have been obliged to report their listings [55]. The city spends around EUR 4 million a year on policing short-term holiday rentals and on data scraping, which helps them enforce the 30-day cap [56]. However, the enforcement has scope for improvement, according to one of our interviewees:

““

Airbnb [...], first they were really collaborating, but now they are quite divided [...]. But the biggest challenge for the city was not to make regulation but how to make sure that regulations were being put into practice [...] Airbnb hosts do not comply with the regulation, and enforcement is difficult.” (Int #4)

According to the property advisory group Colliers, 41% of Amsterdam hosts broke the 60-day cap. With the introduction of the 30-day cap, the number of Airbnb stays in Amsterdam fell by 5% to 1.98 million last year [54].

4.2 Sustainability impacts of space sharing

The sustainability impacts of accommodation sharing in Amsterdam are likely to be similar to those in other densely populated cities. However, there is uncertainty regarding the specific sustainability impacts of accommodation sharing on cities and their citizens. This section serves as a discussion point that needs to be supported by further data.

4.2.1 SOCIAL

Studies show that some forms of the sharing economy support social cohesion. Accommodation sharing is among them. However, Schor warns that as sharing organisations grow, they are likely to become profit-centric, and social goals will disappear from their mission [57].

A number of studies have shown that accommodation-sharing platforms proliferate racism, as white users as well as those with European-sounding names are more likely to secure a booking [58].

Rising housing prices are another factor that is negatively impacting urban social sustainability. The housing shortage in Amsterdam is caused by a number of factors, but a lot of attention is being given to short-term rentals. While studies from other cities do show a correlation between housing shortage and Airbnb, it is not the only factor influencing housing. In Amsterdam, tourism, housing and Airbnb have become politicised topics.

“

[There is an] Airbnb conflict. People complain about tourists. But the tourist issue was before Airbnb.” (Int #5)

According to one of our interviewees, housing issues in Amsterdam were caused by a number of factors:

“

Housing prices [have gone up] tremendously. We need to divide the question into two issues. 1: low interest rates [...]. The fascinating thing is that house prices went up in areas considered ghettos. [...] 2: Amsterdam did not build anything during the economic crisis, which also led to [housing] shortages [...]. 3: The population is growing. The same situation is with offices. No permission for offices, and now there is a shortage of office space as well.” (Int #16)

4.2.2 ECONOMIC

According to Airbnb, short-term rentals bring positive impacts to the citizens of Amsterdam, as it gives them the opportunity to earn extra income [59]. In addition, tourism accounts for around 4.5% of the Amsterdam economy and generates around 60,000 jobs in Amsterdam, to which short-term rentals contribute [60]. Airbnb rentals are taxed at 7%, which is collected by the municipality. The Department of Living scrapes Airbnb data to monitor rentals, but it is difficult to ensure that everyone complies (Int #19). There is also general confusion about the regulations and what is allowed and what is not.

4.2.3 ENVIRONMENTAL

The environmental impacts of accommodation sharing can be attributable to many factors. On the global scale, the lower price of accommodation is, along with other factors, such as cheap flights, likely to drive the demand for tourism in Amsterdam, thereby increasing the associated greenhouse gas emissions. In Amsterdam, the environmental impact is associated, for example, with the use of resources (energy, water), generation of waste and secondary rebound effects stemming from user behaviour:

“

I think everybody knows that Airbnb has, in the end, negative footprints on the environment [...] especially from the rebound effects. People, they get extra money and then they go to Malta.” (Int #4)

The impacts of other space sharing organisations have been discussed much less, but some believe that they have potential to decrease environmental degradation:

“

[Sustainability potential of sharing is] huge because both are making better use of existing assets or space [...] People don't have to build new storage facilities – they can store around the corner with their neighbours or with businesses that have some space left. It doesn't have to be new parking spaces built, no, the current ones, the ones in the offices that are empty on the weekends. They can be opened up, you know, you can park the car there.”
(Int #7)

4.3 Impacts of space sharing on incumbent systems

There are 10,969 active rentals, with an occupancy rate of 87%, in Amsterdam [61]. According to a city estimation, 5% of all Amsterdam's housing is listed on holiday rental sites, mostly on Airbnb [62]. This means that accommodation sharing impacts the existing housing markets, as well as other socio-cultural institutions in Amsterdam.

4.4 Regulatory context and institutional systems for space sharing

The city government has the agency and power to regulate holiday rentals. Since 2017, landlords have been obliged by municipal law to report their listings. The city spends approximately EUR 4 million on policing short-term rentals. At the same time, they also carry out data scraping in collaboration with Airbnb in order to detect hosts breaking the yearly rental cap (Int. #19). The city is also imposing fines of up to EUR 6000 on homeowners who break the renting rules. Over EUR 4.2 million was collected for housing fraud last year [56]. Families with more than four members are not allowed to offer short-term rentals [55]. However, enforcement of the rules is still difficult:

“

The prevention of AirBnb is not happening now. [...] It's sort of complicated. We're working with these home sharing platforms like Airbnb and Booking.com and they're not so opposed to regulation. They like it when there is some national law [...] but what they don't like is making agreements [...] with [individual] cities, of course. So, if there's one rule of law for everyone for all the platforms, [then the] playing field is also level. That's what they really like and that's also good for their business continuity, to know that this is the rule and it is going to be the rule for the next couple of years.” (Int #3)







5 MOBILITY SHARING IN AMSTERDAM

The shared mobility sector in Amsterdam consists of various car and bike/scooter sharing schemes. Although shared mobility solutions, and especially car sharing, has great potential, it is currently a negligible part of the city's transport needs according to experts in the city's transport sector (Int #20). Their respective market shares have been estimated in terms of daily travel distances in a recent study [63]. Today, the three segments of shared mobility (cars, bikes/scooters and taxis) represent about 3% of the total daily distance travelled by the inhabitants of Amsterdam. Shared cars are used for 1.17% of journeys, bikes/scooters 0.83%, and Uber services about 1% [28].

- Of the total daily travel distances by passenger cars, various car sharing schemes account for about 3.5%;
- Of the total daily travel distances delivered by all bikes and scooters used in Amsterdam, shared bikes and scooters account for 4% and 3% respectively;
- Of the total daily travel distances delivered by taxi services, Uber services account for about 35%; the rest is licensed regular taxis.

Cars. Amsterdam residents are still very dependent on private cars, in which they travel 3.7 million km daily. This corresponds to 96.5% of the total distance travelled in all passenger cars (private or shared). Cars in sharing schemes (regardless of the business model) account for 130,000 km/day (3.5%). The majority (81%) is provided by the B2C segment and the remaining (19%) by P2P platforms [63].

The municipality of Amsterdam has the most shared cars in the Netherlands, followed by the municipality of Utrecht. According to CROW/KpVV 2017, the number of shared cars in Amsterdam municipality in 2017 was approximately 5500 vehicles [64], which was probably an overestimate since many inactive cars listed in P2P schemes are also counted [65]. According to the most recent available estimates [33, 66], in the B2C car sharing segment of Amsterdam there were about 1000 station-based and 450 free-floating cars in 2018. In the

P2P segment, an estimated 5500 cars were listed in 2018, of which only about 2500 were 'active', i.e. used actively and regularly. Overall, shared cars are used about three times more than passenger cars in terms of daily distance driven per vehicle [33, 66].

The largest market players in the shared car mobility are presented in the table below. Together with other smaller market players for car sharing (including those specialising in electric vehicles, such as Buurauto, WeDriveSolar, eCarshare) the total number of active shared vehicles in Amsterdam is probably around 4000-5000 (incl. P2P). This is a sizeable share of the estimated² approximately 45,000 shared vehicles in the Netherlands [63].

Table 1
The largest market players in shared car mobility [63]

| Company | Design | No. of cars* | Segment | Asset ownership |
|--------------|---|--|---------|------------------|
| Car2Go | free-floating | 350 | B2C | own fleet |
| GreenWheels | station-based | 700 | B2C | own fleet |
| ConnectCar | station-based | 300 | B2C | own fleet |
| Fetch | free-floating | 100 | B2C | own fleet |
| SnappCar | free-floating | 2,500 active** approx. 5,500 cars listed*** | P2P | private vehicles |
| MyWheels | hybrid | (uncertain) | hybrid | hybrid |
| Other actors | Buurauto, WeDriveSolar, eCarshare (EV-sharing); NS-Business, Shutte (B2B sharing). The list of smaller or niche-oriented actors is not exhaustive. | | | |
| Notes: | * - the number of cars does not represent an accurate figure, as the market is constantly growing and new actors enter or merge with each other; ** - active cars means they are rented frequently, *** - listed cars means they are listed on the platform but used rarely or never. 20% of P2P cars are rented "often" (2/week/car) and 80% - "sometimes" (1/month/car) | | | |

Regular surveys conducted by the Dutch Mobility Panel show that over 90% of citizens in Amsterdam are familiar with car sharing and 15-20% sometimes used a shared car. A large proportion use cars offered by actors in the B2C segment, such as Greenwheels (43%), Car2Go (25%) and ConnectCar (14%), while the largest P2P player SnappCar has around 15% of users. However, estimating the user shares accurately is difficult, as many users can use both B2C and P2P cars. About 69% of private persons providing their own cars for sharing on P2P platforms did so via an organisation (e.g. Snappcar or

² According to estimates available from www.Rijteweg.nl and www.crow/dashboard-autodelen

Mywheels), while 31% offer their cars directly to private individuals, bypassing centralised Internet platforms [68].

Bicycles. Bicycles are an important part of daily mobility in Amsterdam, accounting for 48% of the home to work trips (2016 data) [69] and approximately 20% or 2.3 million km of daily cycling distance in Amsterdam (2018 data) [63]. About 95% of this distance involves owned bikes and 5% shared bikes or scooters [63]. Most bike sharing is station-based. After some initial controversy with free-floating bikes and their temporary ban, new dialogue has been reopened recently between the city and three commercial free-floating sharing bike providers (Int #20). B2C is the dominant model for bike and scooter sharing. The only organised public scheme is OV-bikes funded by the city and operated in close proximity with public transport hubs such as train stations. Free-floating systems are used for providing electric scooters. A summary of bike and scooter travel distance by different forms of ownership and shared services is provided in the table below [63].

Table 2
Overview of bike and scooter sharing [63]

| Product | Company/organisation | Profit orientation, segment | Number of units (2019), est. | Description |
|----------------------------|---|-----------------------------|------------------------------|---|
| Scooters 270,000 km/day | Felyx 800 km/day (0.3%) | Commercial, B2C | 200 | Offers shared e-scooters; pay per ride; free-floating |
| | Other 269,000 km/day (99.7%) | Private and commercial | 57,000 | Uncertain estimate (mainly privately-owned and other free-floating commercial schemes) |
| Bikes 2,300,000 km/day | Swapfiets 60,000 km/day (2.6%) | Commercial, B2C | 18,000 | Subscription-based (leasing, etc.); competes with manufacturers and retailers. |
| | OV-bikes 7000 km/day (0.3%) | Public, G2C | 2,150 | Public sector operated rental bikes at train stations. |
| | Other (diverse) 30,000 km/day (1.3%) | Commercial, B2C | 9,000 | Subscription-based (leasing like); competes with maker and retailers. |
| | Privately-owned 2,200,000 km/day (95.8%) | n/a | | Approx. 690,000 daily cyclists, approx. 661,000 use their own bikes, used daily (total bikes in private ownership, approx. 900,000) |

5.1 Drivers and barriers to mobility sharing

There are many variables that can inhibit or accelerate sharing in the mobility sector. A traffic expert working at the municipality emphasised how “all the rules are based on the limited public space” and how all policies are implemented to make good use of this resource (Int #19). Due to the lack of space on the streets of Amsterdam, the municipality has imposed a cap on the number of shared bikes that each company can offer, and they assign a limited number of parking spaces per car sharing company.

The board of the city is aiming to reduce the number of cars in the city centre (Int #3). These conditions constrain the possibilities for the sector to grow. Other actors in the sharing economy seem to identify the use of the public space as one of the drivers of shared mobility. One of the USOs highlights how the use of parking space can be optimised through shared cars, and a study on platform mobility suggests that car sharing in the city led to the reduction of 8000 parking spaces [63]. Positive sustainability impacts, convenience and flexibility of the system were named as the biggest drivers of shared mobility. Another driver is the cost associated with using the sharing mobility options compared to owning a car or a bike [63].

Some of the barriers to the sharing economy are the connection between the sharing schemes and public transport, local policies and the penetration of the market. In Amsterdam shared bikes available at the train stations were expensive to use (Int #19). Behaviour factors should not be underestimated, and can influence how inhabitants engage with the sharing economy.

5.2 Sustainability impacts of mobility sharing

There are no available studies that quantify the impacts of the sharing economy in Amsterdam. Therefore, in this section, we refer to perceptions of experts or to impacts that have been measured in other cities and, due to similarities between the business models, it can be assumed that they also occur in Amsterdam.

5.2.1 SOCIAL

The sharing economy can involve a number of social impacts, such as the generation of employment for low-skilled workers, the possibility for people who cannot afford a car to use one when they need it. However, there may be negative impacts in terms of employment in incumbent sectors, through a reduction in annual income employment. [63] However, the City of Amsterdam

suggests that, although Uber removes about 900 jobs from the licensed taxi drivers, the net effect is positive, as Uber with its 2100 drivers in Amsterdam attracted an additional 1200 new drivers.

Positive social effects of shared mobility solutions in Amsterdam are increased affordability and accessibility for citizens and tourists. This is especially evident in the case of scooter sharing. Amsterdam has many foreign students, who find it very convenient to use shared bikes and the especially popular swap-bike system (SWAPfiets), which offers a subscription scheme with a small and affordable monthly payment. The minimum duration of the contract is just one month, which suits students and short-term guests. Users are always guaranteed a working bike, as a broken one can be swapped for another. Today the distinctive blue-tyre bicycles are a common sight on the streets of Amsterdam.

In interviews, the City of Amsterdam recognised that, by making car sharing more affordable, people with low incomes could have access to shared vehicles. Social benefits could also be generated from the investment of the taxes that the USOs pay (Int #19).



5.2.2 ECONOMIC

Economic impacts of shared mobility solutions in Amsterdam are difficult to estimate accurately, but they clearly contribute to economic growth. Sharing increases the earning potential of Amsterdam residents by providing shared cars, and generates savings among its users.

Daily distance provided by shared cars could be a proxy for estimating the size of turnover generated by car sharing. The B2C sector accounts for about 105,000 km/day. Based on per-distance pricing (EUR 0.25 per km) of GreenWheels, which represents one of the largest B2C operators in Amsterdam, the sector delivers about EUR 10 million gross revenue. About 33% of it can be regarded as tax revenue from profit tax to the city and VAT to the state. For the P2P sharing segment, the gross annual earning can be estimated. Assuming there are 2500-5500 private cars shared in the city, and that 20% of them are rented “often” (2/week) and 80% “sometimes” (1/month), with an assumed low average price per rental of EUR 30/day, this brings total earnings of EUR 2.5-5 million to the citizens [63]. Of course, net earnings should deduct the costs of maintenance, repair and any tax on income.

The possibility to drive Uber is a good example where the gig economy provides a sizeable income. The net new job contribution of Uber in Amsterdam was about 1200 drivers (2019 estimate) [63]. Their average monthly earnings are similar to taxi drivers. A taxi driver on a payroll earns on average EUR 12.75 per hour, while an Uber driver earns about EUR 11.50 [70]. If calculated with an average working time of 40 h/week, the gross monthly earning is about EUR 2000-2200 or about EUR 1760-1850 net income per month. This corresponds to additional earning capacity of EUR 29 million per year in the city. The total turnover associated with Uber activities in the city has been estimated at around EUR 50 million per year, which brings additional revenue of EUR 6 million in income tax into the city and an estimated EUR 10 million in VAT for the state [63].

5.2.3 ENVIRONMENTAL

The potential environmental effects of car sharing are enormous, because of shorter travel distances by car, lower car ownership rates, more efficient cars, less traffic, freed parking space, and a more intensive use of public transport and biking/walking [71].

When car owners in the Netherlands decide to join a car sharing scheme, about one-third tend to get rid of their existing vehicle or refrain from purchasing an additional car, i.e. a shared car often replaces a second or third car [72]. This estimate is in line with other studies showing that sharing users own 30% fewer cars after they started using car sharing [64]. At the same time, carless users of sharing gain access to cars. Combined with behavioural changes this has implications for travel distances and CO2 emissions.

In Amsterdam it has been estimated that, when previous car owners begin regularly and actively using car sharing schemes, car ownership is reduced by

about 30% and travel distances by about 1600 km/user/year. The carless user on the other hand gains 930km/user/year through sharing schemes. Taking into account car ownership density in Amsterdam the net effect is still positive – a reduction in travel distance per user of 670 km/year. This corresponds to a reduction in CO2 emissions of about 220 kg CO2/user/year. Reduced production of cars translates into a further reduction of 85-175 kg CO2/user/year [63]. Generally, car sharing compared to car ownership reduces travel-related CO2 emissions by about 30% per user [73].

Car sharing impacts on parking spaces in two ways. Cars placed by the B2C sector demand additional parking and reduce car ownership. In Amsterdam, assuming there are about 4000-5000 shared cars (incl. P2P segment), these replace approximately 12,000 private cars. Subtracting the additional parking demand of the B2C sector (approximately 1500-2000 cars) the net reduction of parking in Amsterdam is about 6000-8000 parking spots, corresponding to an area of 16,000-24,000 m². This estimate is in line with the most recent estimate by the Municipality of Amsterdam of around 8000 parking spots [63]. City officials are already aware of this benefit (Int #21).

Another aspect is the liveability of the city. The positive impact of shared mobility is reduction in traffic. However, bike and scooter sharing, which has grown since 2017, has taken over some public space and created an additional nuisance through randomly parked or discarded bikes and scooters. The city has been trying to reduce this negative effect by first banning and then capping the number of bike-sharing players and the number of bikes, as well as zoning the permits (Int #20).

5.3 Impacts of mobility sharing on incumbent systems

Shared mobility impacts several incumbent businesses, including car, bike and scooter retailers, insurance companies, digital platforms, car leasers, and public and private transport. All these are affected in a different way by shared mobility. In the Netherlands, public transport is connected to GreenWheels and to bike sharing at the train stations. Therefore, the public transport is changing in a way in which it is promoting access to the shared mobility options. Other businesses, such as the car leasers, have incorporated new products in their portfolio to join the market of shared mobility. The negative side of car sharing is also the contraction the incumbent sectors and actors, such as taxis, car manufacturers, retailers and insurances. Original car manufacturers are acknowledging the negative economic effects (although they are still rather

marginal) of car sharing. For this reason, several B2C car sharing schemes are owned or backed by large automotive manufacturers. Among car sharing organisations operating in Amsterdam, Car2Go is owned by Daimler and BMW and Greenwheels by Volkswagen.

Several traditional car rental companies in the Netherlands began offering short-term rental services similar to station-based car sharing platforms. Many are experimenting with more flexible service concepts, more convenient car pick-up and drop-off points, streamlining the formalities of signing rental contracts, seamless booking systems and integration across different providers. Several car rentals have extended the availability of their services, making cars available 24/7 (e.g. Hertz 24/7). Some companies (e.g. EuropCar) offer call-a-car services based on a membership and a monthly subscription for a specific rental car or several car types with a possibility of flexible pick-up and drop-off points. Some municipalities are even encouraging such initiatives (presumably if they lead to less car ownership) and offer special parking permits for people who often rent a car and want to park it at special locations (compiled from [65]).

Car leasing companies are gradually realising that the possibility to share a leased car can potentially attract new customers who can reduce the costs of their private leases. New leasing schemes in the Netherlands offer shorter-term and/or shared leasing contracts and extend their contracts with additional services, such as convenient maintenance, changing tyres, insurance and roadside assistance. Although short-term leasing is more expensive than traditional leasing (e.g. 36 months), for some market segments it is cheaper than frequent car rentals. Some leasing companies (e.g. Deelootoo <http://deelootoo.nl/>) offer shared private leases, where several individuals co-lease the same vehicle. It is also becoming increasingly possible to share a privately leased car on different car sharing platforms (e.g. SnappCar or MyWheels). Another example is the Testrijders project [74], where private individuals lease their electric cars and share them via Testrijders platform (compiled from [65]).

5.4 Regulatory context and institutional systems for mobility sharing

There are initiatives at national level that are relevant for mobility sharing. One of the more prominent ones is the Green Deal that started in 2011. It comprises nine themes, one of which is mobility. Green Deal – Carsharing (GDGS) started in March 2017 as an agreement between a broad coalition of 30 providers of

car sharing, leasing companies, insurance companies, municipalities, businesses, interest groups as well as the national government, joining forces with the aim of expanding the car sharing concept and implementation. It aims to encourage companies, governments and private individuals to make maximum use of the possibilities afforded by car sharing. GD-CS had an original goal of 100,000 car sharing cars available in the Netherlands by 2018, but this proved too ambitious (Int #10).

The goal was too ambitious from the start and there were many obstacles related to faster scaling up of car sharing. Primary issues were related to the availability of parking space, the diversity of platforms and no integration between them, fairly good public transport, bikes and slow uptake among those already owning the car. In the new GD-CS from 2019 a new target has been set of 100,000 shared cars and 700,000 car sharing users in the Netherlands by 2021.

The full potential of car sharing in Amsterdam has not yet been utilised. Several regulatory measures are being implemented to support car sharing. Amsterdam's municipality has its own agenda regarding car sharing [64]. This includes different goals, such as emission-free vehicles by 2025 in the station-based sharing schemes and the possibility of a permit that gives inhabitants access to shared cars in five of the largest cities in the Netherlands. They see in car sharing a solution to problems such as lack of space or congestion, but sharing also inhibits the growth of car sharing companies by the cap in the number of parking spaces each company can own.

One of the most important measures is parking policies. The city is reducing the number of public parking spaces, with the objective to cut the number of parking spaces in Amsterdam by 1000 in 2019 and reduce the total by 7000-10,000 by 2025 (Int #10&20). The removed parking spaces are to be replaced by wider pavements and cycle lanes, green spaces, playgrounds or bicycle parking facilities, where possible. The city also creates and provides parking spots for shared vehicles. For instance, in 2015-2016 the city reserved approximately 1000 such parking spaces for shared cars (Int #20). Parking tariffs is another measure to discourage cars in the city centre. For instance, parking tariffs will be increased in April 2019 from EUR 5 to EUR 7.50/hour in the city centre. Some city areas in Amsterdam have been designated parking-free zones, where cars are only 'guests', following an initiative by local residents in the Frans Hals neighbourhood in Amsterdam [64].

All station-based B2C operators CS need either their own parking lots or parking in public spaces. The municipality of Amsterdam can issue a permit for this if there is regulated parking. The rates for these permits vary greatly in

Amsterdam, from EUR 48 per year in Amsterdam North to EUR 856 in Amsterdam Center [75]. Often a license for a shared car is more expensive than a resident's permit (Int #20). A high rate slows the growth of car sharing in a municipality and the costs end up indirectly with car sharers.

In February 2019, the Amsterdam city government approved the Car Sharing Agenda [76]. One requirement is that all vehicles in station-based car sharing schemes must be emission-free by 2025. Today the city is working on establishing an entirely emission-free fleet of fixed-location shared cars with providers such as GreenWheels. To increase the appeal of car sharing for longer journeys, the city is also investigating the possibility of issuing a permit that shared car users can use in five other major cities. Another measure that may support P2P car sharing is an experiment by the city for shared parking permits. People who would like to share a car between them but have permits for two different areas will then be able to park their shared car in both areas.

The municipality is mainly promoting bike sharing initiatives aimed at private individuals who live in Amsterdam. For tourists there are traditional bicycle rental places.

“

We do have bicycle renters in Amsterdam for tourists. And it really works because they also can help tourists by explaining where to bike and what the rules are... it's not a good plan if they can take their bikes everywhere". (Int #19)

When renting bikes from these rental shops, tourists have to bring them back.





6 SHARING OF PHYSICAL GOODS IN AMSTERDAM

In comparison to shared mobility and shared accommodation/space, the sharing of physical goods appears marginal in Amsterdam. Certainly, there are USOs and other platforms that exist and/or operate in Amsterdam, e.g. Peerby, GearBooker, BKSy, FLOOW2. However, the sharing of physical goods does not seem to be on the agenda. The *Action Plan Sharing Economy* developed by the city of Amsterdam does not mention the sharing of physical goods [8]. This may be because city residents and representatives are more greatly impacted by Airbnb and Uber, as well as carsharing and bike sharing, or because business model innovation is needed to improve the financial viability of sharing organisations. However, while observed in Amsterdam, these trends are likely to transcend city context.



6.1 Drivers and barriers in relation to sharing of physical goods

Despite limited experience in sharing of physical goods, there is tremendous potential. It is estimated that 80% of items in our homes are used only once per month [77]. In a 2013 survey conducted by ShareNL, 84% of residents in the Netherlands indicated that they would be willing to take part in the sharing economy [78], but only 10% of those residents expressed an interest to share with strangers. In the same survey, updated and conducted in 2016, the proportion of respondents willing to share with strangers increased to 32% [79]. While this is the most recent survey data, we experienced this trend in Amsterdam as well: there is a willingness among residents to share physical goods.

There are several drivers that may be leveraged in Amsterdam to support sharing of physical assets: convenience, resource efficiency, and community building. Several interviewees suggested their own motivation and their perception of others' motivation to engage in the sharing economy stemmed from the potential to *reduce resource consumption*. Interviewees expressed often that the sharing economy is part of the regenerative or circular economy.

“

Our vision ... is that that we want every consumer product to be part of a regenerative cycle..., to be part of a circular economy. And we believe that the best way to do that is to create a business model around sharing... where there's no idle capacity anymore.” (Int #15)

Others expressed interest in the sharing economy in order to foster *social cohesion* and *community building*. Among our interviewees, there was some discussion of USOs being examples of social enterprises. For example, Interviewee #2 stated “...I guess a lot of organisations ... that are sharing economy and that are social enterprise”.

However, our interviews in Amsterdam indicated that the primary driver for users in the sharing economy is convenience. For example, our interviewees reiterated that “*convenience is king*” (Int #3) and “*convenience is the big one*” (Int #18) in discussing drivers of the sharing economy in Amsterdam. In

considering factors that influence convenience, internet accessibility, population density and affluence provide access to 'stuff'. Indeed, the Netherlands is the EU country with the greatest access to the Internet and is ranked first in access to social media [26].

The average population density in the Netherlands and in Amsterdam, in particular, is high – 5160 persons per km² (2018) [11]. In 2017, the Netherlands had the second highest population density among the EU28, behind only behind Malta on population density [80]. The Netherlands is also relative wealthy; in 2017, the median standardised household income in Amsterdam was EUR 27,600, which increased from EUR 23,800 in 2011 [81]. Standardised income considers household size to provide a more comparable statistic.

While more accumulated wealth means that people may have more physical goods available to share, our interviewees also expressed it as being a barrier. Because there is so much wealth, it remains more convenient to buy new goods than to leverage a USO to find access to shared physical goods.

Our interviewees identified several other barriers. Some suggested that there is more interest in second-hand than sharing. Those sharing platforms we studied continue to evolve their business model to improve their scalability and financial viability. However, interviewees acknowledge this challenge, as using these platforms requires completely new consumption behaviours. Our interviewees expressed that, at present, it is hard to manage a two-sided platform.

“

I think there is a massive underestimation of how incredibly complex it is to get that type of thing to work. ... It's already very hard if you're probably just replicating an existing model.” (Int #15)

There appears to be a lack of sufficient societal support (e.g. limited funding, incompatibility of existing insurance products), which hinders growth in this area. These findings probably apply to Amsterdam as well.

6.2 Sustainability impacts of sharing physical goods

Our interviews suggested that sustainability is a driver for users to engage in the sharing economy. However, at present, we do not know the sustainability impact of sharing physical goods in Amsterdam. We discussed with our interviewees their qualitative impressions of social, economic and environmental sustainability impacts from sharing of physical goods.

6.2.1 SOCIAL

A report published in 2015 in Dutch by Achmea & TruePrice estimated that Peerby, Thuisafgehaald, Snappcar, and Croqker together generated EUR 4 million in social impact in 2014, yielding EUR 15 per transaction in social value [82]. The exact methodology for arriving at this estimate is unknown, but our interviewees suggest that social sustainability is very important among platforms and users. Social cohesion and community building are part of the multiple value propositions offered by the platforms. For example, Share Your Meal provides meals at a reduced price and markets itself as bringing communities together.

6.2.2 ECONOMIC

Sharing is claimed to be a cheaper alternative to ownership. This is not yet verified, as some suggest that access-based consumption may be more expensive in the long-run. However, sharing does not seem to be the more convenient option at present, especially regarding physical goods. This may be why USOs adjust their messaging depending on who they are targeting and for what products. For example, one sharing platform said, *“we’ve decided now on the financial benefits, but we’ll adjust our message to the specific target groups”* (Int #14). Environmental

6.2.3 ENVIRONMENTAL

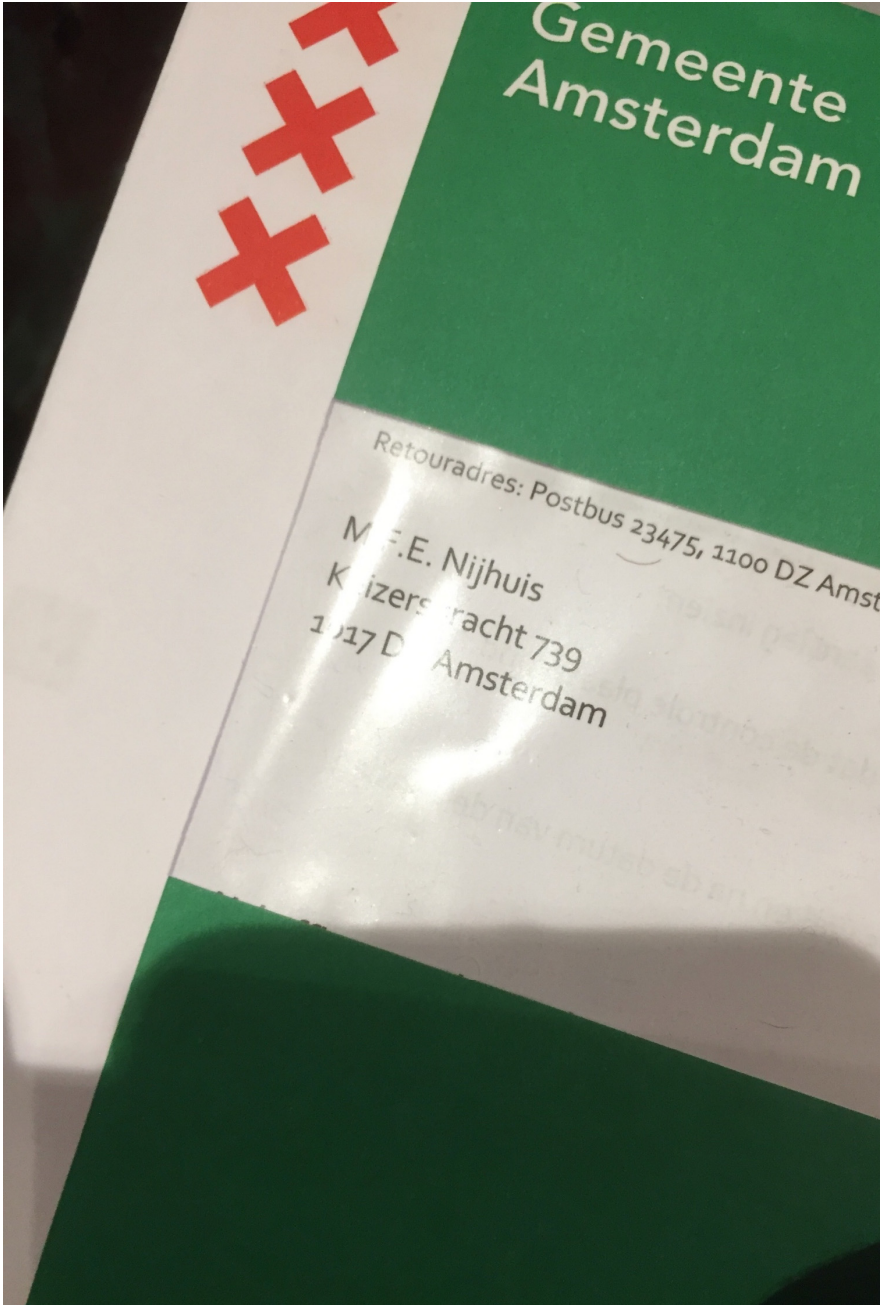
The sharing of physical goods is said to increase the intensity of use and lifespan of a product. Again, this will need to be verified before it can be suggested that this leads to improved environmental outcomes. However, the potential environmental impact is part of the multiple value propositions offered by the platform. Users want to know what consumption practices are more or less environmentally sustainable. USOs expressed interest in supporting their users and marketing their environmental impact; however, one interviewee shared with us that it is *“...mostly because [they] didn’t have the time or the money to do it”* (Int #15).

6.3 Impacts of sharing physical goods on incumbent systems

There are no known platforms that facilitate sharing of physical goods in Amsterdam. Our research, supported by ShareNL, discovered approximately seven platforms that operate in the Netherlands, but three of those platforms that facilitated sharing of physical goods are no longer active. Again, sharing physical goods remains marginal, so there seems to be limited impact on incumbent systems. However, some suggested that the competition may be with traditional rental companies rather than retailers. This may not be ideal, as rental still provides access over ownership. There is also evidence that indicates growing interest among traditional suppliers to be involved in sharing of physical goods (e.g. power washing equipment manufacturer, school goods supplier).

6.4 Regulatory context and institutional systems for sharing of physical goods

The focus of our study was limited to understanding the regulatory and institutional context in relation to sharing of physical goods, partly because it appears marginal in Amsterdam. While the City's Action Plan Sharing Economy provides an overview of the city's agenda [8], there is no specific mention of physical goods. Some interviewees expressed exasperation at the city, as well as other stakeholders, for providing limited meaningful support beyond a venue for dialogue. While dialogue is important, meaningful support and strategic direction is needed, to change household consumption and promote more sustainable consumption practices





7 THE ROLE OF THE CITY IN GOVERNING URBAN SHARING ORGANISATIONS

In its Action Plan on the Sharing Economy (2016), the City of Amsterdam encouraged activities that would benefit innovation, social inclusiveness, sustainability and entrepreneurship [8]. The municipality monitors and responds to the sharing economy developments whenever the challenges arise. The Department of Economic Affairs works with sharing at a strategic level, while the Department of Traffic and Public Space and Innovation Office work at the operational level. The Startup Amsterdam programme offers possibilities for the sharing economy and other startups [83]. The City is a founding member of the Sharing Cities Alliance. The City has revised its Action Plan on the Sharing Economy into the new Agenda on the Platform Economy in 2019 .

It is positive that different departments are working with the sharing economy, but this may also lead to differences in opinions and counterproductive actions. For example, as expressed by one interviewee:

“
sometimes it's difficult if people work at the Traffic Department and they just think, we do have enough cars in the city and an extra car sharing platform brings extra cars to the city. Then when we're trying to discuss a potential shift from ownership to use, they're thinking about the car sharing platform and might not understand why we think it could be a good idea. So that doesn't always work very well.” (Int #3)

Departments may also have different views about specific mechanisms of governing the sharing economy. Literature suggests that there are five mechanisms that city governments may employ when working with sharing organisations [84]: regulating, self-governing, providing, enabling and collaborating (Figure 1). These mechanisms have been identified from two streams of literature: the urban governance modes, i.e. governing by authority, through provision and enabling and self-governing [85, 86] and collaborative governance literature [87, 88]. The city government can employ any of the five roles and combine them to varying degrees when dealing with various governance issues [85]. The roles could explicitly or implicitly promote or inhibit the emergence and operation of sharing organisations.



Figure 2
City roles and governance mechanisms in the sharing economy [89]

7.1 Regulating urban sharing organisations

City governments often regulate the sharing economy through the mechanisms of enforcement and sanction. In the regulating mechanism, cities use regulatory tools such as laws, taxes, bans and policies to govern the establishment and operation of sharing organisations. In this way, cities may constrain the sharing economy, encourage emergence or spreading, or support certain types of sharing organisations.

In 2014, Amsterdam was the first city in Europe to negotiate a deal with the home sharing platform Airbnb, resulting in accommodation owners being able to rent their properties for a maximum of 60 days per year, reduced to 30 days per year from 1 January 2019. This was done to ensure that short-term rentals do not contribute to the housing crisis, and to regulate the uncontrolled growth of tourism, thereby preserving the city's authentic charm to its inhabitants. To enable this, the municipality lobbied for changes in the national legislation to regulate short-term home rentals.

The City Agenda on Car Sharing promotes electric cars in shared fleets and specifies parking permit rules for free floating shared cars. A municipal policy for bike sharing is currently under preparation.

While the municipality does not engage directly with organisations for physical goods sharing, the city has a Circular Innovation Agenda.

7.2 Providing for urban sharing organisations

Municipalities also govern the urban sharing organisations through the provision or withdrawal of practical, material and infrastructural means. The mechanism of provision includes at least four roles: city as an owner, city as a host, city as an investor, and city as a data provider.

'City as an owner' implies that a municipality owns or co-owns a sharing economy initiative. This role was not found in Amsterdam.

In their roles as investors, municipalities provide funding to urban sharing organisations. The City of Amsterdam offers various funding opportunities to the urban sharing organisations through its StartupAmsterdam programme.

City governments often act as hosts by providing infrastructure or space to the sharing economy initiatives. This role was not found in Amsterdam.

The 'city as a data provider' role relates to municipalities sharing their data with the citizens by, for example, creating and operating open data platforms. This role was not found in Amsterdam.

7.3 Enabling urban sharing organisations

Municipalities may govern the urban sharing organisations by enabling or disabling them. Unlike the mechanism of providing, enabling relies on intangible methods, such as persuasion, argument and incentives. This mechanism includes at least two roles: 'city as a match-maker' and 'city as a communicator'.

The 'city as a match-maker' role is evident when municipalities facilitate collaboration of the urban sharing organisations with other similar organisations, potential users, knowledge institutes or venture capitalists. For example, in Amsterdam, the municipality organises workshops and meet-ups for urban sharing organisations to enable such collaborations. In collaboration with the expert organisation ShareNL, it has provided information about the sharing and platform economy and offered training on the topic to the urban sharing organisations.

“

[S]ometimes we travel to other cities, like when we went to Barcelona, and there were a few platforms with us... and then what we tried to do is that they meet the right people in the other city to do business with... But also, we try to connect them with venture capitalists. So, we have all these meetups, where... Because we know everyone, you know the knowledge institutes, we know the venture capitalists, we know the start-ups, we know the companies... it's a lot of connecting, organising meetups, where they can meet these relevant people. “ (Int #3)

Another example of the 'city as a match-maker' role is when the City of Amsterdam connected 10,000 low-income citizens holding a City Pass, with ten cooks in their neighbourhoods through 'Share a Meal' food sharing

platform. In this way, people got access to a subsidised meal from a local cook. The City of Amsterdam did this with the goal to stimulate social cohesion and to promote digital literacy for all.

In their roles as communicators, municipalities may disseminate the best urban sharing practices and market them to different stakeholders. They may also organise competitions and offer voluntary certification schemes to recognise the best sharing practices. This role was not found in Amsterdam.

7.4 Self-governing urban sharing

Municipalities may engage with the sharing economy through the 'self-governing mechanism'. At least three roles exemplify this mechanism: the city as a consumer, the city as a sharer, and the city as a data user.

The 'city as a consumer' is the role where municipalities adopt urban sharing practices in their own operations, for example, through municipal public procurement. This role was not found in Amsterdam.

The 'city as a sharer' is the role when municipal units offer assets they own for shared use by others. Often these are experimental initiatives. In a trial period, the City of Amsterdam opened up empty municipal buildings for use by the organisations working with a social focus for free.

The 'city as a data user' is a role where municipalities gain access to data collected and stored by the sharing economy platforms. This can be personal data about hosts on Airbnb or drivers of Uber, information about the number of rental days per year, or number and length of rides provided per day. Such data could empower municipalities to enforce their regulations or optimise their planning activities. However, there are very few examples of the sharing economy platforms willingly providing such data to city governments. This is rather on the 'wish list' of the municipalities. For example, the Department of Traffic and Public Space is looking into opportunities to collaborate with car sharing platforms to collect data about rides.

7.5 Collaborating with urban sharing organisations

Municipalities may also engage with the sharing economy initiatives through collaborative mechanisms, when both parties play active roles in the governance process. At least two city roles are evident here: the 'city as a negotiator' and the 'city as a partner'.

The 'city as a negotiator' role has been evident in the case of Amsterdam in their negotiations with Airbnb.

The 'city as a partner' role is often present when a municipality seeks to address its urban sustainability challenges through its engagement with the sharing community. One example of this is the partnering of the City of Amsterdam with the 'Share a Meal' food sharing platform and the City Pass.



8 CONCLUDING REMARKS

Urban Sharing project aims to investigate the sustainability impacts of the sharing economy as well as business models and institutionalisation pathways of urban sharing organisation for sustainability. The primary method for data collection is Mobile Research Labs. This city report is the result of a Mobile Research Lab conducted in Amsterdam in Spring 2019.

Our interviewees described the sharing landscape in Amsterdam as mature, especially compared with other European cities [90]. Generally, the landscape and the trajectory of development of larger for-profit USOs is better mapped than the landscape of smaller community run and often non-profit organisations. The market for space and mobility sharing is better developed than the market for sharing of physical goods. We could identify clear leaders in the two sectors: Airbnb in accommodation sharing, Snappcar in P2P and GreenWheels in B2C car sharing. The sector for sharing physical goods is very small and fragmented.

Research shows that the sharing economy is not sustainable by default, so urban sharing organisations, city governments and incumbents all have important roles to play in ensuring that the sharing economy positively impacts cities and their citizens or even contributes to solving sustainability challenges faced by cities, as is often claimed.

In the face of negative perceptions and possible impacts of the sharing economy, we may need to be more deliberate in thinking in terms of scaling the sharing economy to the size, needs, and capacities of cities.

Insights contained within this report may support the City of Amsterdam as well as urban sharing organisations and third-party actors in Amsterdam or beyond to begin to be strategic about the design and support of the sharing economy for sustainability.



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URBAN SHARING in Amsterdam

City report no 1 by URBAN SHARING TEAM

“Urban Sharing in Amsterdam” explores the landscape of the sharing economy in the city context. This research is a result of a Mobile Research Lab conducted by 7 researchers from Lund university in 2019. Specific focus is on three sectors: sharing of space, mobility and physical goods. For each sector, we discuss the drivers and barriers to the sharing economy, the associated sustainability impacts, the potential impacts on incumbent sectors, and the institutional context of sharing. Then, attention is turned to the role of the city council in engaging with the sharing economy and specific governance mechanisms employed by the city council are described.

Since the sharing economy is not sustainable by default, urban sharing organisations, city governments and incumbents all have important roles to play in ensuring that the sharing economy positively impacts cities and their citizens. In the face of negative perceptions and possible impacts of the sharing economy, we may need to be more deliberate in thinking in terms of scaling the sharing economy to the size, needs, and capacities of cities.

Insights contained within this report may support the City of Amsterdam and other Sharing Cities, as well as urban sharing organisations and third-party actors in Amsterdam and beyond in their strategic work with the sharing economy for sustainability.



URBAN SHARING
Sustainability & Institutionalisation

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