Mobile Research Lab
Methodological underpinnings

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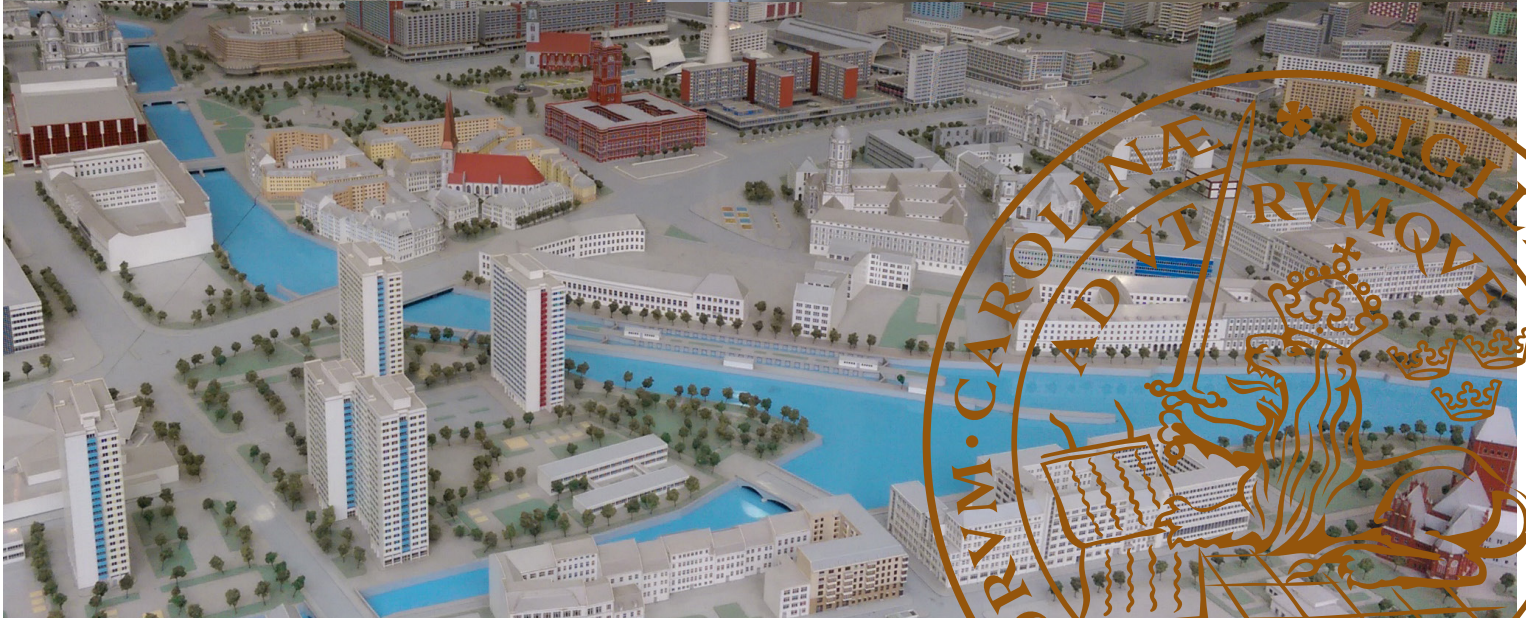
1. Scientific approach

This document aims to describe a methodology for conducting in-situ research for the research programme, *Urban Sharing: Sustainability and Institutionalisation*. *Urban Sharing* adopts an innovative research design by combining deductive and inductive types of research with techniques for data collection and analysis from several disciplines. This enables the inter- and transdisciplinary study of USOs in diverse city contexts.

The unit of analysis is urban sharing organisations that share physical goods, embedded in a city context. The potential to reduce environmental impacts of these USOs is much higher than for USOs that share, for example, skills or time. *Urban Sharing* will study design, sustainability practices and institutionalisation pathways of these USOs in diverse city contexts.

The research programme employs multi-directional research at two levels: 1) the organisational level – endogenous strategies of USOs to design their own operations
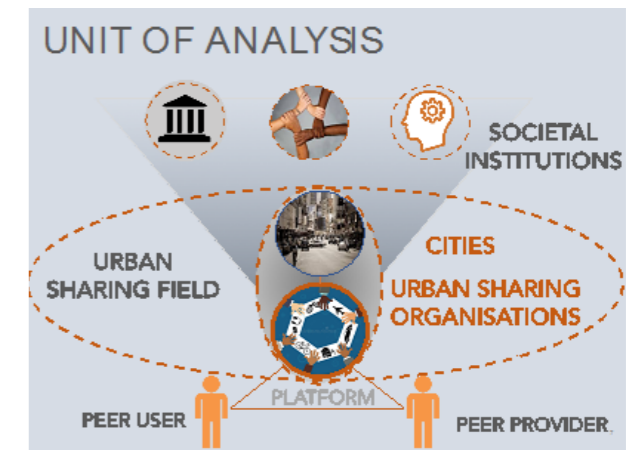
and practices and to act as 'institutional entrepreneurs' who shape public policies and broader institutional arrangements in a way that legitimises themselves; and 2) the institutional/city level – the role of city governments (and potentially other societal actors) in institutionalising USOs and in their sustainability.

2. What is a Mobile Research Lab?

The 'mobile research lab' method is based on the idea and term coined by Harriet Bulkeley and Johannes Stripple to represent a type of research activity where an interdisciplinary group of researchers visits various sites to study a certain phenomenon in a city. According to Bulkeley, the method is based on a concept of infra-labs (infrastructure labs) put forward by Simon Marvin (Sheffield University) and colleagues in the 2000s (Bulkeley 2016). Infra-labs implied a process of collectively researching infrastructure-related controversies in urban contexts.

Mobile Research Lab is an innovative approach comprising a collaborative process of conducting in-situ analysis by a research team interacting with actors directly and indirectly involved in USOs in cities. These can be social and business entrepreneurs, users, city governments, incumbent companies and civil society organisations, and NGOs working for or against urban sharing. Each mobile lab lasts 5–7 days in the field, during which at least 2–3 USOs per day are studied.

Unlike the original idea of a mobile lab that studies "a specific sustainability controversy, intervention, or experiment", Mobile Research Lab investigates a more complex and broader societal phenomenon manifested in activities of a variety of organisations and societal

actors. These actors hold a great diversity of opinions about the studied phenomenon, and frame claims, problems and solutions in very different ways. The phenomenon is studied in an urban context so, in this sense, the Mobile Research Lab has an ethnographic character.

Unlike the original mobile lab approach, each Mobile Research Lab also includes: at least four weeks of preparatory work and analysis of existing case-specific material; research team planning meetings; conducting initial interviews by phone or Skype; 5–7 days of field work; processing of the collected material; meetings of the research team to collect personal reflections from the field work; and write-up of a MRL report.

Like the mobile lab approach, a strength of the Mobile Research Lab is that it investigates a phenomenon through a series of labs that follow the same or a similar script, thereby enabling and facilitating unveiling of similar or contrasting patterns, processes and conditions. The mobile lab approach was employed in the GUST project run by the IIIEE, in which mobile labs were conducted by the entire team of researchers to compare how 'urban living labs' have developed in different countries and cities.

3. Conducting a Mobile Research Lab on Urban Sharing

The Mobile Research Lab in the *Urban Sharing* programme is run in one of the cities in the programme. Each MRL has a set of similar components, as follows.

1. The unit of analysis is urban sharing organisations (Curtis & Lehner 2019):
   a. that share physical goods (tangibles, no consumables or food);
   b. that share idling or under-utilised goods acquired for "own" use
   c. that are mediated by ICT creating two- or multi-sided markets;
   d. that are rivalrous, i.e. when the use of shared good prevents others from using it at the same time;
   e. where temporary access is offered as an alternative to ownership;
   f. where sharing takes place among strangers (not the traditional sharing among family and friends).

2. An interdisciplinary group of researchers, comprising the expertise areas from urban studies, business administration, sustainability assessments and consumer studies.

3. Desk-top and online study collecting background information about the city context, USOs and relevant stakeholders through interviews, online and published media, academic articles, technical reports, books and websites.

4. A five-day programme of activities designed to analyse a substantial number of USOs in each sector representing different business models. The MRL may include a broad range of methods for data collection, including but not limited to site visits, interviews, observations, engagement with USO users, walking tours, meetings with key actors, and attendance of fairs, festivals or exhibitions. These encounters are guided by a set of themes for inquiry. In Urban Sharing, these themes at the highest level are USO design and operations, sustainability evaluations and institutionalisation pathways.

5. Multiple means of recording these encounters (e.g. photo, short videos, notes, sketches) and an archive of this knowledge.

6. Reflection among the group members on the findings, interpretations and framings, structured according to the themes and recorded. Also, daily de-brief meetings about the encounters, experiences and thoughts.

4. Purpose of the Mobile Research Lab for Urban Sharing

The MRL methodology in *Urban Sharing* will enable the research team to:
1. study USOs, their design and operations, in multiple urban contexts;
2. examine the USO sustainability profiles and compare them to the usual business scenario; and
3. explore the ways in which USOs are becoming institutionalised in multiple urban contexts.
MRL enables dialogues within the interdisciplinary research group, thereby helping to generate common knowledge.

5. Implementation Guide for Mobile Research Lab

Mobile Research Lab involves the following steps:

5.1 CHOOSING CITIES
The empirical research provides insights through case study research of USOs in five cities – Amsterdam, Toronto, Shanghai, Seoul and Melbourne – representing contrasting contexts in Europe, North and Latin America, Asia, and Australia. These cities are seen as vanguards in urban sharing and represent different contexts and institutional backgrounds, different levels of maturity, and diversity of drivers and enablers of urban sharing. Institutional pathways in each city differ, shaped by various constellations of actors and socio-economic factors.

The selected cities offer sufficient diversity in terms of ways of engagement for entrepreneurs and roles played by city governments, incumbent businesses, and the general public in shaping the urban sharing landscape. For example, Seoul funds the Sharing City project, which

aims to expand its sharing infrastructure, by promoting existing and supporting new urban sharing enterprises to address the challenges of transportation, housing, community cohesion and job creation. Amsterdam is the first designated Sharing City in Europe. Toronto is home to a great number of successful urban sharing start-ups and boasts an active local government. Shanghai and Melbourne are other cities in focus, because of their ongoing engagement and their ambition to expand their urban sharing initiatives. They add to the socio-economic and institutional diversity of the other cases and offer further opportunities for strengthening the global relevance of Urban Sharing. All cities are members of C40, a network of the world's megacities committed to addressing climate change, and all but Shanghai are members of the Sharing Cities Network.

5.2 COMPOSITION OF THE RESEARCH TEAM
An interdisciplinary research team of 6–12 members is put together. The research team of Urban Sharing consists of eight people (three senior researchers, two post-doc and three PhD students). Whenever feasible, MRL is synchronised with an exercise with MSc students at the IIIEE, who can gather data following the Mobile Research Lab process described here. According to sources and experiences of conducting mobile labs, teams of researchers smaller than six people may reduce the value of the collective research design, which relies on reflection and exchange of ideas and impressions among members of the research team. More than 12 people might be harder to manage from a logistical point of view and in terms of recording all interactions and reflections among researchers that take place during the day and after the visits and encounters.

5.3 PREPARATION FOR THE MOBILE RESEARCH LAB

5.3.1 Desk-top research on urban sharing and USOs
This research reviews the landscape of urban sharing in the city in question. Research focuses on the diversity of USOs, their value creation models and, where feasible, their sustainability profiles and sustainability claims, describes their main stakeholders, and identifies relevant local government policies impacting urban sharing. An essential part of the Mobile Research Lab is examination of USOs' related online discussions and discourses in local and social media. This can be done by conducting software searches across 'the social web' (e.g. blogs, Twitter, Facebook, forums and online news outlets with comment boards) and then analysing the data against a situational context. This step may also include interviews with USOs, NGOs working with sharing economy issues and with city governments, with the aim of identifying USOs that we would like to study.

5.3.2 Selection of urban sharing organisations for case studies.

Case USOs will be chosen through trawling of 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 will be used when choosing case USOs, guided by several criteria: 1) USOs that have the greatest potential to reduce their environmental impact through sharing – those that share physical goods, e.g. cars or electronics, compared to those that share skills or time; 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 different types of engagement of city and other actors (coercive, enabling, supportive, neutral and inhibiting) and different institutionalisation pathways.

Other criteria for choosing case USOs will be based on a range of organisational and business model features. We will study both formal (businesses) and informal (grassroots) USOs, with and without transfer of ownership among the actors (e.g. swapping and borrowing respectively); ICT-enabled and not; USO users who have different motives for sharing: pecuniary, non-pecuniary, or reciprocal; and USOs with different response strategies to institutional uncertainties (e.g. compliance, compromise, avoidance, defiance or manipulation).

5.3.3 Development of comprehensive questionnaires and creation of online forms

The research team prepares questionnaires for USOs, NGOs and academics, and city governments. The *Urban Sharing* programme combines deductive and inductive approaches, so the questionnaire design follows existing, customised or developed analytical frameworks. These offer classification systems for categorising USOs and their design and business models, the extant literature on sustainability assessment frameworks and sustainability indicators, and theoretical underpinnings from neo-institutionalism (such as institutional entrepreneurship, institutional work, and legitimacy) that can be used for developing questions about institutionalisation pathways of USOs.

Although these theoretical insights offer sufficient guidance, due to the novelty of the urban sharing phenomenon, there should be the appropriate flexibility for interviewees to explore new avenues, so interviews are often semi-structured. The research team must be open to different kinds of field data to ensure that important streams of data are not missed simply because they do not fit pre-selected theoretical constructs. A comprehensive questionnaire for USOs is developed, based on extant literature. Wherever feasible the questionnaire includes multiple-choice answers. The long questionnaire with multiple-choice answers serves both for preparation of USO case studies and for collecting data during actual encounters.

In addition to the comprehensive questionnaire to USOs, the research team develops customised questions for NGOs, academics and the city government. If possible, the questionnaires are created online.

5.3.4 Collection of background information about case USOs

Once the final list of case USOs is finalised, the USOs are divided among the researchers. Each researcher uses the comprehensive questionnaire to collect background information about their USOs. As much information as possible is collected using online searches, printed media and social media, and entered in the template. Any information included in the case description must be thoroughly referenced with sources, links, reference persons, etc. so that all information sources can always be traced. Wherever possible, interviews should be held with the case USOs prior to the physical visit.

5.3.5 Development of a short interview guide

An average visit/interview takes approximately 1–2 hours. This is not sufficient time to ask all the questions from the comprehensive questionnaire, so it has to be shortened to a maximum of 20 questions, with 5–7 questions for each theme. Once the search for available information about the case USO is finalised (as described in 3.4), and researchers judge that there is sufficient credible information (triangulated by source, method and stakeholders) collected for specific questions, researchers may omit these questions or make them second-priority questions to save time. This means that the researcher revisits the short questionnaire and customises it to the specific USO. Each interview must contain a question about whether the team may request more information in the future or make a return visit to conduct research, e.g. about USO's consumers, sustainability impacts or institutionalisation.

5.3.6 Development of a case study protocol

This protocol is used for describing case USOs. A tentative structure for the case study protocol for a USO includes the following sections:
– DESIGN: Background info about case USO, including history, organisation, motivation, key activities and business model, stakeholder analysis;
– SUSTAINABILITY: Sustainability framings and sustainability assessment comprising existing data about USOs' environmental, economic and social impacts; outcomes of studies conducted together with the case USO to map and evaluate their direct and indirect impacts, and streamlined LCA evaluation of scenarios reflecting different business models for specific 'product' domains;
– INSTITUTIONALISATION: Institutionalisation pathways of case USOs in city context: institutional work and institutional complexity.

5.3.7 Involving various actors

In order to improve the transdisciplinary value of the research, the team should involve various actors from the field of institutional sharing.

5.4 EXECUTION OF THE MOBILE RESEARCH LAB

5.4.1 General overview

Mobile Lab is a five-day programme of activities that combines site visits, interviews, observations, direct involvement with USOs (e.g. working a couple of hours in a swap-shop), and using the USOs' services in the role of users (e.g. renting a shared apartment or using car sharing services). The direct methods of interacting with USOs help researchers immerse into the everyday realities of the USO business and gain insights from

the perspectives of both providers and users. Each day comprises 2–3 visits to USOs, NGOs working with sharing economy issues, and the city government. During each visit, the researchers are divided into three groups that follow the specific themes of investigation: design, sustainability practices and institutionalisation pathways.

5.4.2 Assigning roles during encounters
Researchers are also assigned different roles in terms of methods of data recording: audio, photo, video. One member of each pair takes primary responsibility for asking questions and the other is responsible for taking notes. Since questions are asked by theme, researchers who are not engaged at a particular time take responsibility for recording the encounter by using audio recording, taking photos and making short video films (1–3 minutes), once permission to record has been obtained.

5.4.3 Introduction and interviews
During each meeting one member of the research team briefly introduces the *Urban Sharing* programme and the purpose of the visit/meeting, gives a one-page description of the project, and asks the interviewee to sign the Consent Form. The research team then asks specific questions relating to the three themes.

5.4.4 Testing hypotheses
In addition to obtaining answers reflecting the three themes of the study, the research team also develops, tests and refines hypotheses about interrelationships between the three themes. We hypothesise that design of USOs has implications for both their sustainability profiles and their institutionalisation pathways.

Consequently, possible theoretical propositions that could be tested during the Mobile Research Lab are:
P1) the design of USOs affects the sustainability of their practices and pathways of institutionalisation;
P2) the sustainability of practices is a powerful factor for building legitimacy and therefore for the institutionalisation of USOs, and vice versa;
P3) USO design is shaped by institutional forces that reinforce continuity and reward conformity in different urban contexts;
P4) different institutional logics shape the sustainability of USO practices;
P5) USOs develop context-specific strategies to deal with institutional complexities; and
P6) cityscapes and institutions are influenced by entrepreneurial forces of USOs that bring about change and reward innovation.

5.4.5 Open-ended reflection
During the stay in a city, the group assembles each evening to reflect on what was encountered during the day and to share their impressions and experiences. Each researcher summarises their impressions of the day on the theme for which they are responsible and the other researcher responsible for the theme provides additional information.

The rest of researchers then reflect on the theme from their own perspectives. Researchers reflect about individual USOs and the collective picture of urban sharing organisations in a specific city context. They may hypothesise on interrelationships between, for example the design and sustainability profile or sustainability profile and institutionalisation pathways, thereby adding to the battery of hypotheses to be tested during the Lab.

The team then moves on to consider the next theme. Reflections may involve general thoughts about the site visit, connecting to the themes of inquiry. Reflections may also be about the method of data collection and suggestions for how to improve on the following day. This helps to refine the methodology of Mobile Research Lab.

5.4.6 Structured and recorded reflection
After the oral reflection part, the research team is asked to respond to three particular questions (depending on the themes) about what they have seen and heard about each USO. This is a way of collectively exploring how each researcher sees, understands and interprets what they have heard and seen and how each team member analyses USOs in diverse city contexts. Researchers are asked to write a 500-word summary of their reflections and interpretation of the day. The reflection sessions are also recorded and become an essential part of the data collected during the Lab.

5.5 DATA ANALYSIS

5.5.1 Interviews are recorded
The semi-structured interviews are recorded where possible, transcribed or semi-transcribed, and analysed using NVivo or a similar computer programme for qualitative analysis and mixed-methods research. If needed, other methods for CAQDAS (Computer-Assisted Qualitative Data Analysis) are considered.

5.5.2 Data analysed
Data from interviews are analysed together with notes, other types of data and recordings from reflection sessions according to the conceptual frameworks.
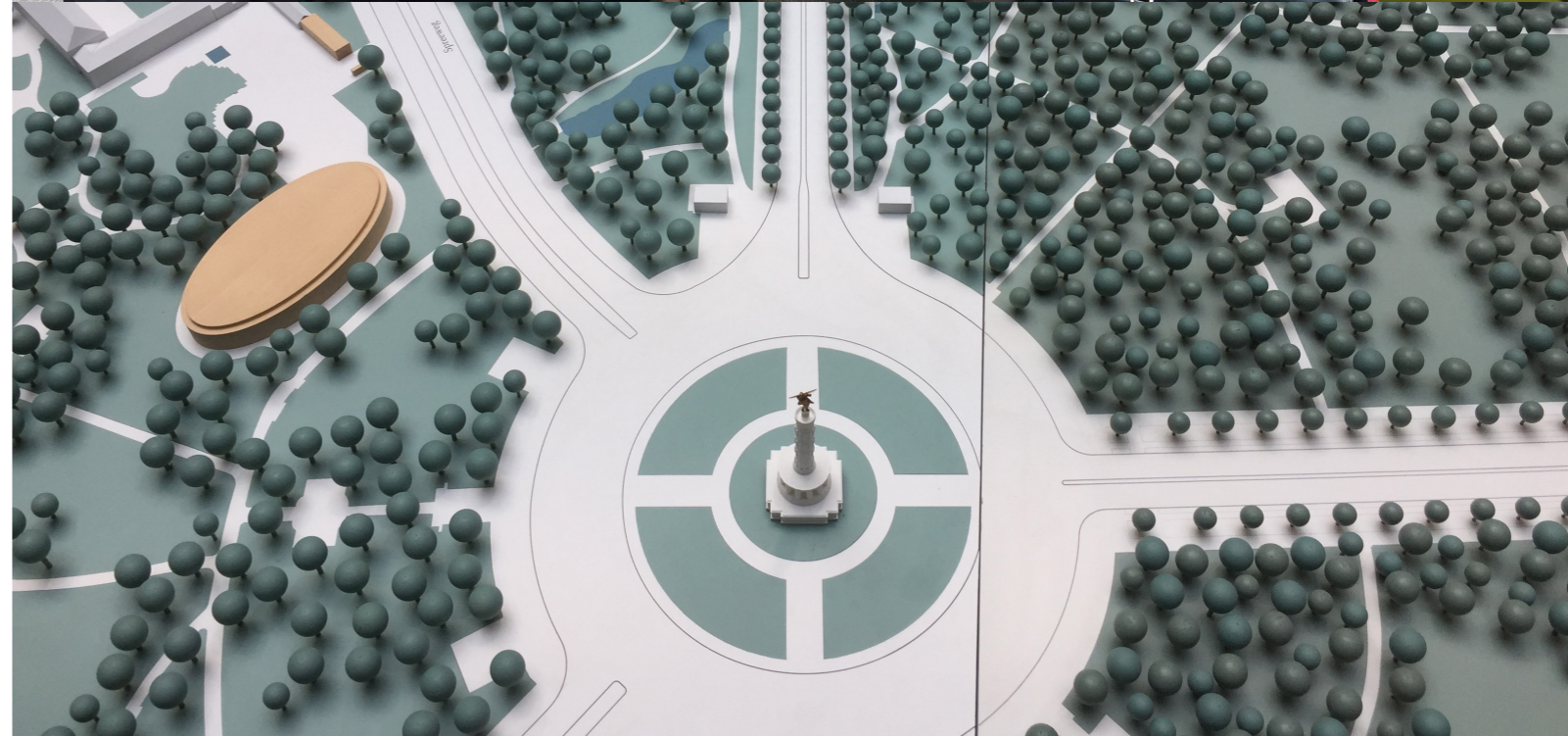
5.6 PREPARATION OF THE FINAL REPORT

5.6.1 Case study protocol

Analysed data is fed into the case study protocol of individual USOs following the structure described in section 3.6. Each researcher is responsible for 2–3 USOs and for producing the case study for each of them. Each case describes why and how the USO has emerged and evolved, how it frames their sustainability practices and how it measure its impacts. Data is also compiled on how city representatives perceive USOs' sustainability profiles, what organisations at city, regional and national level provide support to or inhibit USOs, what kinds of institutions USOs see as the main barriers and why, and how USOs envision their future.

5.6.2 Library of material

After the MRL, a library of material relating to the study – compiled from the literature review, initial interviews and generated during the Lab – is produced together with a draft of the report on a city sharing profile. Two researchers are primarily responsible for producing a city sharing profile, but all researchers contribute to producing a 15–20-page document on the sharing scene in each city. The draft of the city report should be finalised within one month after the MRL, after which research continues on finalising cases. Follow-up interviews and specific studies to assess sustainability impacts can be conducted with case USOs.

5.6.3 Publication

The final case studies of USOs and city reports are published in the course of the *Urban Sharing* programme.

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