



Sharing City Compass

For Umeå Municipality

Taein Jung
Dominika Machek
Michael Port
Simo Sulkakoski

International Institute for Industrial Environmental Economics

Lund University
P.O. Box 196
22100 Lund

Executive Summary

This report was produced by students Taein Jung, Dominika Machek, Michael Port and Simo Sulkakoski at the International Institute for Industrial Environmental Economics (IIIEE) at Lund University in partnership with Umeå municipality.

“Sharing economy” (SE) is a concept constantly evolving in its content, purpose and extent. While a wealth of research is available on sharing economy strategies and approaches in large metropolitan areas like San Francisco, Seoul and Amsterdam with millions of inhabitants, little attention has been given to what the sharing economy implies for cities potentially lacking the population “critical mass” that many consider a precondition for successful growth in the sharing economy. This report explores the possibilities for developing the SE in a smaller city context with the example of Umeå in Sweden, and adapts a decision-making model which can be used to frame the thinking of local stakeholders with decision-making authority in Umeå and other cities of a similar scale.

This decision-making model, titled “Sharing City Compass”, refers to a set of elements that the local authority needs to consider when constructing its own sharing city model. The Sharing City Compass is inspired by the framework prepared by the city of Guelph in Ontario, Canada, in their report called “Navigating the sharing economy.” To develop the Compass, multi-stakeholder interviews were conducted with 18 individuals, representing politicians, municipal departments, for-profit and socially-driven sharing enterprises, academia and incubators, among others. The project also included a questionnaire distributed to local sharing service providers and a workshop held in Umeå for the organising actors of the *Sharing City Umeå* initiative. In addition, by applying the Compass to the current context in Umeå, recommendations are provided to Umeå municipality to support its thought processes as it pursues the development of the local sharing economy in a systematic manner.

CONTENTS

EXECUTIVE SUMMARY	2
ACKNOWLEDGEMENTS	5
ABOUT THIS REPORT	6
SHARING ECONOMY AND SHARING CITY: INTRODUCTION	7
SHARING ECONOMY IN SMALLER CITIES	8
THE MUNICIPALITY OF UMEÅ	9
OVERALL ENVIRONMENTAL STRATEGY	9
SHARING CITY UMEÅ	10
<i>The Current Status of Sharing in Umeå</i>	11
THE SHARING CITY COMPASS	12
SHARING CITY DECISIONS	13
DECISION 1: WHAT ARE THE PUBLIC POLICY GOALS?	14
ECONOMIC DEVELOPMENT AND EMPLOYMENT	15
<i>Risks</i>	15
<i>Opportunities</i>	15
ENVIRONMENTAL WORK	15
<i>Risks</i>	16
<i>Opportunities</i>	16
COMMUNITY AND SOCIAL DEVELOPMENT	17
<i>Risks</i>	17
<i>Opportunities</i>	17
DECISION 2: WHICH GOVERNANCE APPROACH SHOULD THE MUNICIPALITY ADOPT?	19
GOVERNING BY AUTHORITY	19
SELF-GOVERNING	19
GOVERNING BY PROVISION	19
GOVERNING THROUGH ENABLING	20
GOVERNING THROUGH EXPERIMENTATION	20
THE LOCAL PERSPECTIVE	20
DECISION 3: WHAT KIND OF SHARING SHOULD BE PRIORITISED?	23
MARKET-DRIVEN SHARING	23
<i>Benefits</i>	23
<i>Drawbacks</i>	23
ENVIRONMENTAL AND/OR SOCIAL PURPOSE-DRIVEN SHARING	24
<i>Benefits</i>	24
<i>Drawbacks</i>	25
THE LOCAL PERSPECTIVE	26
DECISION 4: WHAT KIND OF STAKEHOLDERS SHOULD BE ENGAGED?	27
THE LOCAL PERSPECTIVE	28

DECISION 5: WHAT KIND OF ACTIONS SHOULD THE MUNICIPALITY TAKE?..... 33
 THE LOCAL PERSPECTIVE 34

DECISION 6: HOW WILL THE ROLES AND RESPONSIBILITIES BE ALLOCATED? 37
 THE LOCAL PERSPECTIVE 38

DECISION 7: HOW CAN IMPLEMENTATION AND EVALUATION OF THE SE BE PERFORMED? 41
 THE LOCAL PERSPECTIVE 42

SUMMARISED RECOMMENDATIONS..... 45

CONCLUSION..... 47

REFERENCES 48

APPENDICES..... 50

APPENDIX 1..... 50
List of Interviewees 50

APPENDIX 2. 51

APPENDIX 3..... 53
Overview of Questionnaire Respondents..... 53

APPENDIX 4. 56
Questionnaire Responses 56

Acknowledgements

The team would like to thank Umeå municipality for inviting us to contribute to their early work in developing the local sharing economy. We would firstly like to thank our supervisor Charlotte Leire for her dedicated support to help develop our project and for spending so much time arranging meetings and interviews with Umeå's stakeholders. We would also like to thank Johan Sandström and the acting Sharing City Umeå project coordinator Philip Näslund, for their availability in providing the resources necessary to complete our work and openness in sharing the collective vision for Umeå. Finally, we want to thank the numerous project stakeholders and other actors who showed genuine passion and drive during our visit to make the region a better place. We admire that Umeå sets a high bar for itself to be a positive role model for sustainability work in Sweden and on an international level.

Taein Jung is from South Korea and has professional experience in strategy consulting and international development with the Asian Development Bank. She holds a BSc in History & International Relations from the London School of Economics.

Dominika Machek is from Sweden and has over two years work experience in Norway as an assistant buyer for a fashion retailer. She holds a degree in Textile Management & Business Economics from the Swedish School of Textiles.

Michael Port is from the USA and has worked for two years in environmental consulting for industrial water permitting. He holds a BA in Environmental Studies.

Simo Sulkakoski is from Finland and has professional experience in investment management and online retailing. He holds a BA in Business Studies and Economics.

About This Report

A group of Master's students from the International Institute for Industrial Environmental Economics (IIIEE) at Lund University was invited by the municipality to collaborate on the local project *Sharing City Umeå test-bed* under the national programme *Sharing Cities Sweden* for a degree course. The team came into the project in March 2018 at the beginning of Phase II, one month before the official launch of Sharing Cities Sweden. Energy- and Climate Strategist Johan Sandström and Environmental Coordinator Philip Näslund introduced where Umeå stood at that point and with their guidance, allowed the team to develop an idea that would best serve Umeå's needs at this stage.

After a review of other sharing cities in development, the team identified an existing decision-making model for local governments. In this report, the team adapts the model to the local context with a set of questions that Umeå municipality should consider when developing its own model of a sharing city in the form of a "Sharing City Compass" (hereafter referred to as "the Compass"). To develop the Compass, the team reviewed current and proposed sharing activities as part of the SCU initiative and conducted multi-stakeholder interviews, a survey and a workshop in Umeå which was attended by approximately 20 project partners.

We would like to point out that the different elements of the Compass ought not to be considered as fixed, but will rather evolve over time with Umeå as the local SE and collective global knowledge of the term expands.

The remainder of this report is structured as follows. First, the topics of the "sharing economy" and "sharing city" are introduced, with an outline of Umeå municipality's status quo with respect to the SE. The main section of the report that follows is dedicated to the Compass. Here, the model is introduced, and the different decisions are elaborated on a detailed level. The descriptions of these decisions are complemented by key findings from interactions with relevant stakeholders in Umeå, recommendations on the next steps for the municipality, as well as case studies from other sharing cities that are deemed relevant for Umeå. Finally, a brief summary of the key recommendations is presented, along with concluding remarks of the report.

KEY CONCEPTS

USER

A consumer of a sharing service.

PROVIDER

An entity that provides, or has organised the delivery of, a sharing service.

PLATFORM

A physical or a digital meeting place where users and providers convene to (mostly) share, rent, donate or exchange goods, services, ideas or knowledge.

PEER-TO-PEER

The interaction between individuals either directly, i.e. face-to-face, or via a platform.

TOP-DOWN APPROACH

Creation and provision of sharing services by central authorities.

BOTTOM-UP APPROACH

Creation and provision of services on a local level.

REBOUND EFFECT

Occurs when benefits from a sustainable improvement are undermined by new problems that emerge from the improvement itself.

ABBREVIATIONS

SE

Sharing economy

SCU

Sharing City Umeå

Sharing Economy and Sharing City: Introduction

While there are still no commonly agreed definitions of the concepts “sharing economy” and “sharing city”, it is necessary to choose how they are understood for this report. “Sharing economy” refers to a new economic model generated through the sharing of access instead of ownership. However, depending on the objective and context, the term can also be denoted as ‘value in redistributing excess to a community’, meaning that sharing is geared towards contributing to positive societal value [1]. “Sharing city”, on the other hand, refers to the envisioning of establishing city as a sharing system itself through ‘sharing the whole city’ [2]. Another description of the sharing city is provided by Sharing Cities Alliance, according to which a sharing city is such that makes use of the opportunities the SE presents to, for example, enhance the city’s sustainability in terms of economic resilience and social cohesion [3].

For the purposes of this report and in the context of the SE in Umeå municipality, we employ a broad definition of “sharing” that 1) encompasses both communal and municipal-wide modes of sharing, and 2) capitalises on the idling capacity of goods and services to improve resource efficiency, while 3) building social capital and increasing trust between citizens. Therefore, sharing of resources, infrastructure, goods, services and capabilities are widely embraced as long as the action, platform or implication of sharing enhances trust, builds social capital, and (in some cases) creates new commercial opportunities.



Sharing Economy in Smaller Cities

Existing case studies and literature on the SE movement focus on examples from big metropolitan cities such as San Francisco, Seoul and Amsterdam with the supposed population “critical mass” of millions of inhabitants deemed necessary to make sharing models viable for business. However, to achieve a larger-scale transformation of societies and countries through the SE in the future, it is important to incorporate smaller cities into this movement since most people on earth are located not in major cities, but in smaller, less-densely populated urban areas. It is recognised that Umeå is a medium-sized city in the Swedish context, but the report henceforth uses this classification based on Umeå’s position in the global perspective and in the SE dialogue.

It is justified to place more specific attention on sharing city models of smaller cities, because the models devised in larger cities may not be transferable due to substantial differences in resource availability, governance structures and overall economic, social, technological, political and environmental conditions. However, despite the potentially fewer available resources, smaller cities are not necessarily less capable of developing as sharing cities. In fact, smaller cities could be more suitable environments for the SE because they tend to have more *trusting* societies, and because sharing as an activity requires trust between the exchanging parties [4]. For example, people can be more willing to share their possessions with a nextdoor neighbour than with a stranger that they interact with on a digital sharing platform. Further, smaller local governments may be better able to form close connections with different communities and identify their needs, and thus tailor their actions accordingly.

However, challenges may also come about. For instance, authorities in smaller cities may face barriers to acting as a regulator of the SE because some changes can only be achieved through cooperation with other actors on a national level, which then requires a wider societal consensus. Therefore, it is important that the authorities in smaller cities identify what they can and cannot do to best shape and steer the local SE that supports the achievement of their objectives.

The Municipality of Umeå

Umeå is northern Sweden's most populated municipality, with a population just above 125 000 people. However, the majority of Umeå citizens (54%) are born somewhere else than Umeå and, furthermore, 11% of the population are non-natives. The largest influx of people has been of young citizens of the age between 19-30 years. The reason for this is the city's educational opportunities; in fact, since the establishment of Umeå University in 1965, the population of the city has doubled, with a student population of approximately 32 000 in 2017.

Thus, the average age of the Umeå citizens is young (38 years), which can be noticed in, for instance, the city's relatively wide choice of leisure activities, covering festivals, pubs, restaurants and cafés. The city also offers a full range of recreational activities covering about 680 associations, 10 youth centres and 220 sports clubs. The outdoor life in Umeå is characterised by its forests and rivers, and closeness to the sea.

The businesses in Umeå are mainly specialised in biotechnology, medicine, IT and environment and energy areas. Some of the products that are being manufactured in Umeå are forestry machines, front loaders, laboratory instruments and computer games. All in all, the number of businesses in Umeå add up to 14 000 [5].

The city profiles itself by the following characteristics:

- The hub of Northern Sweden
- The city that is growing
- The city of knowledge, outdoor activities and culture. [6]

UMEÅ'S VISION AND AIMS

POPULATION GROWTH TARGET

- Increase population to 200 000 by 2050 to be achieved with environmental, social and economic sustainability.

LIVING CONDITIONS

- Gender equality and integration – equal opportunity for genders and nationalities to influence the society and their own lives.
- Achieve Sweden's best public health by 2020.
- Reduce childhood poverty by half by 2020.

EDUCATIONAL EFFORTS

- Quality improvements in primary schools to enable equal opportunities for children.

BUSINESS & COMPETENCY DEVELOPMENT

- Create conditions for business development and increased job opportunities.

NON-PROFIT ENGAGEMENT

- Strengthen the municipal relationship with non-profit organisations.

URBAN DEVELOPMENT

- Increase construction of new housing properties to 2000 per year.

ENVIRONMENTAL IMPACTS

- 2018 Climate neutral energy system
- 2020 Fossil fuel free public transport
- 2030 Fossil fuel independent vehicle fleet
- 2045 No net greenhouse gas emissions
- Front runner in circular economy

Overall Environmental Strategy

Umeå municipality is strategically working with environmental projects and initiatives in order to find ways to transition urban development towards environmental sustainability. The municipality has created the platform *greenumea.se* as a way to highlight on-going green projects within Umeå. Below illustration highlights some of the current main projects.

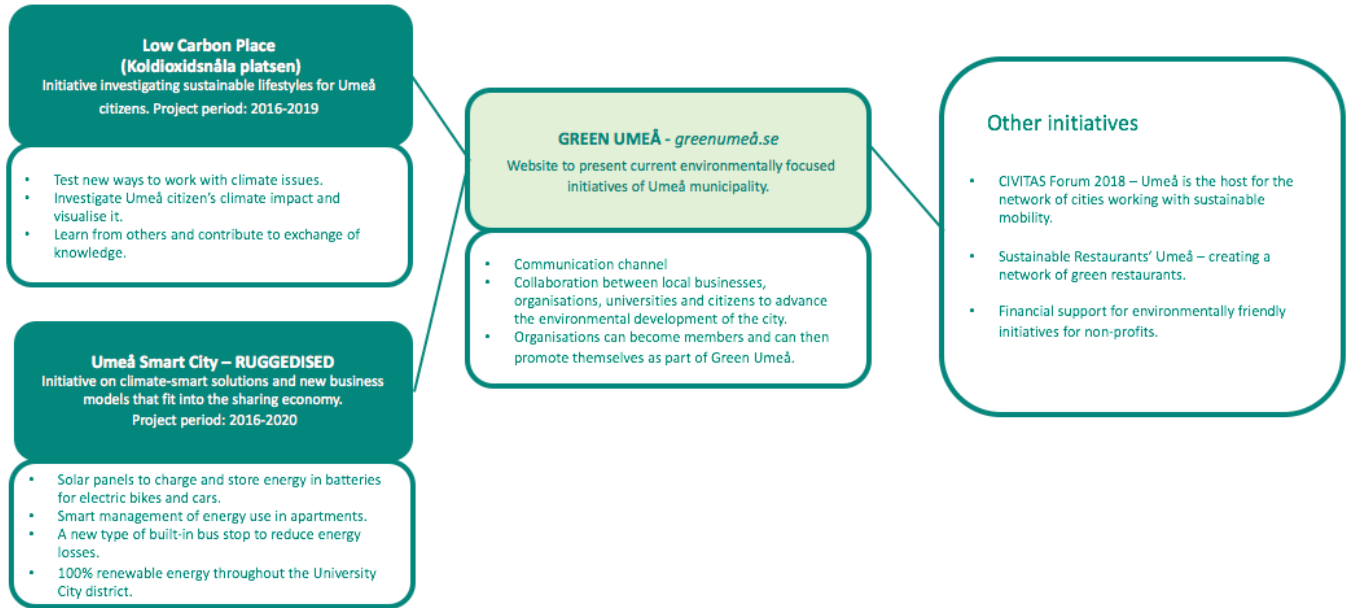


Figure 1. Examples of environmental initiatives in Umeå (source: authors).

Sharing City Umeå

Under the national programme *Sharing Cities Sweden* (www.sharingcities.se), Umeå municipality aims to create opportunities for collaboration between the public authority, business sector, non-profit organisations, academia and others to enable the development of sharing services that can bring value to the city and its residents across three focus sectors, *mobility, spaces, and products and services*. While the national programme is rather focused on potential environmental gains, the municipality of Umeå heavily embraces social aspirations. Thus, the Sharing City Umeå (SCU) vision appears to follow that of the national programme but is adapted to the local context and seeks to create a more resource-efficient, trusting and socially just society.



Resource efficiency



Trust between citizens and actors



Equality in society

The Current Status of Sharing in Umeå

After three workshops involving different stakeholder groups (general public, potential partners and national actors) in Autumn 2017 as part of Phase I, Umeå laid out the initial plan to implement Sharing City Umeå. Umeå has so far established three initiatives, with three additional still in the planning phase. Of the initiatives, one is a private enterprise (Delbar) and five are a mix of municipality- and collaboratively-run projects.

ESTABLISHED INITIATIVES	PLANNED INITIATIVES
1. U-BIKE AT UMEÅ UNIVERSITY CAMPUS	4. SHARING OF GREEN SPACES – CAMPUS PARK
2. DELBAR	5. SERVICE HUBS
3. FRITIDSBANKEN	6. SHARING OF KNOWLEDGE AND IDEAS

Table 1. Established and planned sharing initiatives in Umeå municipality.

Phase II spans from 2018-2020 and will involve developing new sharing services and testing, evaluating and adapting them according to the overall aims.

Overall, it seems that many of the preconditions for a thriving SE already exist in the municipality of Umeå. To ensure that the most appropriate and informed steps are taken in SCU from now on, the following section will introduce and explain the Sharing City Compass. In each of the decisions introduced, the compass will be applied and discussed from the perspectives of the stakeholders that we interviewed in Umeå.

The Sharing City Compass

Compared to larger metropolitan cities with millions of inhabitants, small and medium-sized cities have a different set of considerations and resources available to pursue economic development and public policy issues. The following guidance is presented with these types of cities in mind. With a population of approximately 125,000 in Umeå, the critical mass is not yet there for many viable for-profit sharing business models nor for non-profit service providers. Thus, municipality needs to be actively engaged to support the development in a more structured manner. In order to do so, the report offers guidance in the name of the “Sharing City Compass”.

The Sharing City Compass is inspired by the report “Navigating the sharing economy” by the city of Guelph in Ontario, Canada, which presents a decision-making model to guide local governments as they navigate their options to implement a sharing economy strategy. Our team has adapted this model to better serve the needs of Umeå and other cities of a similar scale. Because Umeå municipality has already set in motion several components of the Compass, the report discusses the risks and opportunities associated with those decisions and provides recommendations to make them more effective. For decisions that have not yet been made or less explored, the Compass presents an array of options for future decisions.

Specifically, this has been done by reviewing relevant literature, conducting multi-stakeholder interviews and collecting survey responses from existing sharing service providers, to arrive at seven *sharing city decision categories* as opposed to six decision categories presented in the report by the city of Guelph. We emphasise that while the Compass follows the structure of the original decision-making framework by the city of Guelph, content-wise the models differ significantly from one another, due to country specific differences and the size of cities.

Below table presents the different activities that were conducted during the project period.

26 Feb - 11 April	9 April - 20 April	16 April	16 April - 26 April
<p>First meeting held with Project Coordinators (26 Feb)</p> <p>Background research conducted and aligned according to the Compass.</p>	<p>Held interviews with 18 local stakeholders.</p> <p>Circulated a questionnaire to other local practitioners.</p>	<p>Workshop held with 20 project partners and interested stakeholders in Umeå.</p>	<p>Compiled interview findings and survey results & data coding.</p> <p>Researched examples from other cities based on Umeå findings.</p> <p>Constructed the Compass.</p>

Table 2. Project Activities

Next, a brief overview of the sharing city decisions is provided, followed by more detailed analyses of each decision individually. These explanations will first present the general purpose of the decision and then provide the findings made in Umeå in relation to the decision (titled *The Local Perspective*), apart from Decision 1. Where relevant, recommendations in relation to the decision will be provided as well.

Sharing City Decisions

A set of seven decisions and corresponding options are laid out for cities as they plan the development of the local SE. These decisions include:

1. **Public policy goals:** a decision on how developing the SE will serve the municipality's greater policy objectives
2. **Governance approach:** a decision on what form of governance approach to pursue in the development of sharing city
3. **Types of sharing:** a decision on organising the priorities of different types of sharing solutions
4. **Stakeholders:** a decision on the list of stakeholders to engage with and/or focus sector groups to prioritise
5. **Municipal action:** a decision on the municipal actions for intervening in the local SE
6. **Roles & responsibilities:** a decision on the allocation of roles and responsibilities both within the municipality and in between different stakeholders
7. **Implementation & evaluation:** a decision on the forms of implementation and evaluation criteria & methods



Figure 2. Sharing City Compass.

Decision 1: What Are the Public Policy Goals?

Before any decisions are made, it is first important to reconcile how developing the SE will serve the municipality’s greater policy objectives. While it may be possible to devise a strategy that complements multiple objectives, the assumed approach will differ depending on the desired outcome they are interlinked in many aspects (figure 3).

Rather than provide recommendations similar to the following sections, the alternatives under Decision 1 are explained using risks and opportunities since the policy goals of SCU are already chosen. Three broad policy goals became apparent during the initial research and interview phase of this project (described in table 2 below).



Figure 3. Related public policy goals of Umeå.

PUBLIC POLICY GOAL	DESCRIPTION
<p>Population growth vision</p>	<p>Umeå’s population growth vision is motivated by the need to stay competitive with other Swedish municipalities that shapes its public policy decisions and encouraged its engagement with the SE. The municipality intends to meet this aggressive growth target by attracting migrants from around the region and continuing to develop an inclusive society for potential future immigrants into Sweden. The target envisions a positive feedback loop wherein a rise in population growth enables further economic development and vice versa. This poses a challenge for the municipality to effectively manage its environmental footprint.</p>
<p>Environmental sustainability</p>	<p>By 2028, Umeå is seeking to be a forerunner in the circular economy, which seeks to eliminate waste by shifting away from the linear model of production and consumption. During the course of this study, it was understood that advancing the SE on a higher level could contribute to the overall resource efficiency of Umeå and complement the circular economy vision. The municipality is also engaged in other projects mentioned in “Strategic Environmental Work” that target different aspects of urban sustainability.</p>
<p>Social development</p>	<p>Community and social development goals are a strong motivation for the SCU project as elaborated in early planning documents and through conversations with project stakeholders. Equality and trust in society are two of three general objectives that Umeå Municipality seeks to achieve through its work under SCU, and a social development dimension emerged during the research. The main themes that arose were integration and social cohesion, as well as gender equality.</p>

Table 2. Related public policy goals of Umeå and their descriptions.

Economic Development and Employment

Umeå, like all other municipalities, is motivated by and relies upon economic development to sustain its population with essential public goods and services needed to meet citizens' needs. Progress under the SE in the most notable models, such as Uber and AirBnB, has largely engendered expectations that sharing will contribute greatly to the economic performance of cities, presenting opportunities for financial success to innovators and providing new opportunities for employment for the general populace.

Risks

As economic activities decentralise with an underdeveloped regulatory system around sharing, there is a potential risk that the municipal tax base can diminish [7]. This particular issue may be prevalent when there is strong participation from for-profit sharing businesses and is a minor concern at this stage of sharing in Umeå. Regulatory reforms have allowed some municipalities to charge taxes on short-term accommodation rental transactions.

Questions have also been raised in relation to labour standards. Some argue that precarious employment may emerge when participant suppliers in sharing platforms lack a stable income, and that a race to the bottom may take place if competition goes unregulated. Furthermore, in some cases risk may be shifted from the business onto its contractors [8].

Opportunities

While changing the ways in which urban residents consume and live [9], the SE provides opportunities for new business models and enterprises to develop. Given that Umeå is a university city with strong support for innovation by national agencies such as Infotech Umeå (Uminova Innovation), ALMI Företagspartner, and Coompanion, the grounds seem fertile to emphasise development in sharing if a concerted effort is made.

What is more, a versatile development of sharing services has the potential to attract certain types of new residents, commuters as well as recurrent visitors [9]. Given Umeå municipality's vision to reach 200,000 inhabitants, a feedback loop could be created as growing economic opportunities attract more visitors and new residents. The critical mass of potential participants in the SE was an often-cited prerequisite for the success of developing the SE.

Environmental Work

Umeå Municipality has a strong dedication to pursuing environmental sustainability, with various ongoing projects tackling issues related to consumption, carbon emissions, and 'smart city' development. For instance, current mobility statistics indicate that 29% of citizens use a bike to commute to and from their workplaces. This is already an admirable statistic, but the municipality intends to improve still by setting the target to reach 65% sustainable transport use by 2022 [10]. While there still has been little concrete evaluation of the environmental impacts produced by the SE, it can present the opportunity to improve resource efficiency by reducing the idling time of goods and services.

Risks

An often-cited risk that is difficult to anticipate is the rebound effect. For example, if a consumer saves money by utilising a sharing service or other sustainable consumption activity, they may end up purchasing more of that good. It is a challenge to achieve sustainable consumption when efficiency gains are offset by an increase in demand for more efficient products. The ultimate goal should be to curb natural resource use in absolute terms as the population grows and enjoys rising incomes [11].

The potential for rebound effects should raise questions about whether a larger market for used goods lead people to buy new things intended for reselling, or whether people travel more often when it becomes less expensive [8].

“If consumers are able to save money by using sharing services instead of buying things, what happens if they collect their savings to go on a trip to Thailand?” (Several interviewees)

Umeå municipality must also carefully manage its desired population growth if it wants to perform successfully in mitigating its environmental impact. In traditional cases, population growth has produced higher impacts due to greater consumption and economic activity, so the effectiveness of SCU and other environmentally-aimed initiatives will shape how sustainable this population growth can be.

Opportunities

By sharing its own capital equipment internally within the municipal organisation and with other local governments, a city government can improve its own resource efficiency and utilisation rates [9,12]. For instance, the municipality could more actively search for buildings and meeting rooms that are unoccupied for long stretches to maximise usage rates and give the public more access to meeting places. They could be rented out for use by a wide association of groups and potentially for those interested in sharing.

The greatest opportunity to maximise environmental benefit is to utilise the promotion of sharing to complement other environmental initiatives and contribute to the municipality’s circular economy vision.

Sharing organisations and sharing cities in general are still waiting for methods to be developed that reliably evaluate the environmental impacts of sharing activities. Given that Umeå’s starting point for working with the SE is fairly early in the development process and it is also a relatively small city, we believe there is great local potential for experimentation in how to measure sharing impacts on environmental indicators. (See more on this suggestion under *Decision 7: Implementation & evaluation*).



Examples in Practice

Fix-It Clinics

Fix-It Clinics led by volunteers can help reduce the amount of goods going into the waste stream. One Fix-It Clinic in the state of Minnesota, USA, brought in 2000 individuals with nearly 3000 items to repair. At a 73% success rate, the Clinic diverted roughly 7000 kg of waste from going to landfill. Advantages include being a low-cost initiative with easily measurable impacts on waste prevention.

This activity can be utilised in Umeå to help support a consumer-oriented Circular Economy strategy and promote the sharing of knowledge and community-building. It might also be compatible with the planned "Sharing of Knowledge and Ideas" initiative by using the same physical meeting place. [11,13]

Community and Social Development

Previous generations shared within their communities before there was any such thing as the SE. But, in the recent past this concept has gotten away from modern society. People have been encouraged to own instead of share, partially due to growing production efficiency that reduced the price of goods, but maybe also the physical isolation from our neighbours as digital communications substituted for face-to-face interaction. Proponents of the modern sharing concept argue that its resurgence can restore the elements of community and social connectivity that have eroded to some degree in past decades.

Risks

While trust and collaboration building can certainly result from successful sharing activities, social aspects may also be diminished if providers are not careful. Some instances of negative impacts on social capital include the potential for reproducing, class, gender and racial biases between participants, as well as research that found a reduction in the formation of strong bonds between users as the amount of reputational information provided by a platform increased [8]. At least in platform-based sharing models, another important consideration is the divide in participation between younger and older people, as older people may not be as tech savvy or open to trying a new form of consuming [7].

Additionally, the vision to achieve 200,000 inhabitants poses uncertainties about whether the community can maintain its high level of trust and openness. As Umeå grows, can it avoid the characteristic unfamiliarity that is found in many large cities?

Opportunities

There is evidence to suggest that social connectivity as well as trust can be enhanced through interpersonal sharing schemes (e.g. food banks) and small-scale trading and bartering activities [14]. A number of interviewees indicated that Umeå already has exceptionally high levels of trust and openness in the society, which is both a precondition and result of positive experiences with sharing.

In addition, a recent survey referenced by several interviewees found that locals are part of five associations or extracurricular groups on average. Enabled by physical and digital sharing hubs that are set to be implemented later on in the SCU project, communities and different groups of citizens in Umeå should have more opportunities to engage with one another and perhaps be stimulated to form their own sharing platforms that connect further citizens. Umeå can emphasise the social dimensions of sharing to achieve the inclusive society it desires.



Decision 2: Which Governance Approach Should the Municipality Adopt?

It is seemingly a modern trend in urban development that the traditional hierarchical governance structures are being replaced with more versatile methods that emphasise collaboration with different urban actors from wide domains [15]. In planning a sharing city, municipalities may take a combination of approaches to develop local sharing capacity and which has been categorised into 5 different modes of governance. While the first four have been defined by Bulkeley and Kern, the fifth mode of governance by experimentation is added by Emtairah et al. [16,17]. Depending on what stage of development the SE lies, the available resources that are present, and the prevailing political and social contexts, one approach may be more suited than another or be employed simultaneously as appropriate.

Governing by Authority

The municipality may choose to pursue a traditional governance approach by steering a policy through jurisdiction and formal authority. This may include measures such as regulation, sanctions, bylaws and policies. However, often being criticized for its coerciveness, it is not a mode of governance that is most popular especially in implementing social and environmental agenda because of potential social backlash and conflicts [16,18].

Self-Governing

The municipality can govern through leading by example to influence other urban actors and its citizens. This may take different forms such as instituting sharing activities within municipality and between public actors as well as a consumer through public procurement. This may require some organizational restructuring, institutional investment and innovation. For example, municipality may choose to borrow from sharing actors instead of making purchase. It is especially effective in small cities where the presence of municipality is more significant and visible.

Governing by Provision

In pursuing a policy direction, the municipality may choose to provide the necessary services and resources to its citizens directly. The municipality could act as investor and provide for financial assistance for sharing actors, and in some cases, deliver the infrastructure itself. For example, many cities have chosen to deliver public bikes and infrastructure for bike sharing practices as in the case of Umeå's U-bikes. It may also include the opening of municipal facilities and or other open spaces towards the public during idled hours. It tends to be more common in countries with high welfare provisions and financial capacity on a municipal level [11].

Governing Through Enabling

Rather than the municipality taking the action itself, another governance approach could be through encouraging engagement from private actors and local communities. Municipalities could pursue this path through raising awareness, forming external partnerships and facilitating the network between stakeholders. Municipality may encourage the prosperity of sharing activities through instituting endorsement schemes to recognise sharing actors on municipal level which may help marketise the sharing practices to different stakeholders and public. Bulkeley and Kern claim that municipalities take most active governance role with a combination of self-governing and enabling approach [16].

Governing Through Experimentation

Since many of the contemporary urban policies tend to be innovative solutions, municipalities may need to experiment new approaches and ideas beyond traditional means and channels. This most commonly takes form of attempting new forms of partnerships or using new platforms in interacting with citizens. An employee of Viable Cities, a mother programme of Sharing Cities Sweden, emphasized during our interview that, it is important that the municipality “learn from doing by start doing” rather than “getting everything in place before we have everything and straightened first”. The results of experimentation can be evaluated to be adapted in the aforementioned governance approaches.

The Local Perspective

As it is today, the Sharing City Umeå project is a municipality-driven project whereby the municipality is largely acting as the provider of sharing services. There are some initial signs of experimentation as suggested by test space approaches in Ålidhem, showrooms and the Smart University City project. Through interviews, it was evident that the stakeholders felt that the municipality needs to portray itself and act as an enabler of SE as the project progresses. Umeå has its distinctive advantage that it already boasts a high level of collaboration between different actors as a natural characteristic of a trustworthy society.

Yet, one of the most common concerns was that the SCU is operated by the inner circles of existing projects, implying that the SCU should aim to reach beyond the usual stakeholders that participate in other municipal projects. The Municipality needs to work on reaching the local communities through raising awareness and encouraging participation. This is critical because experience shows that sharing activities tend to prosper in small-scale communities where there already exists a high level of social trust. The interviews pointed that there is a vital need for a coherent and clear narrative to persuade the public to agree that sharing is useful for reaching a greater social good as a community. A general agreement was that the message should be aligned with the rest of on-going municipal projects under the same goal of pursuing “smart sustainable city”. As to how to enable bottom-up participation, there were different suggestions from a wide sector of stakeholders such as:

- Greater exposure of sharing activities across the municipality to familiarize the concept (e.g. Delbar's popup store in the Umea university) by start participating;
- Implement municipal projects on local levels and/or focused spaces than in the general city areas;
- Create a public movement to encourage organic growth on local levels – this may require an extent of “nudging” to influence consumer behaviour;
- Developing technical tools & provide training to make sharing activities easier to start their own/use for ordinary people.



Examples in Practice

How Seoul raised public awareness on local level

Seoul is a big metropolitan city and in many regards different from Umeå. However, there is still a great deal to learn because Seoul has operated Sharing City project since 2012 and its mature development may present potential opportunities to adapt for Umeå.

Seoul, or the Seoul Special Metropolitan City (SMC) in full name, is comprised of 25 districts called “autonomous Gu” similar to London or New York’s Borough system. Each Gu has its own legislative council and serves wide functions that would otherwise be handled by city governments in other parts of Korea. There is also a big range in the area (from 10 to 47 km²) and population size (140,000 to 630,000) as well as difference in the level of income. Because they vary in their characteristics, each Gus have different needs based on their respective social issues. It is also difficult for the SMG to impose certain policies without a close cooperation with relevant Gu because they hold the autonomous authority equivalent of other cities themselves.

Hence, SMC instituted the “*Autonomous Gu Incentive System*” to promote the Sharing City project on local level whereby each Gus are provided with financial incentives based on the evaluation on their effectiveness in promoting sharing activities. This encourages for voluntary engagement driven from local level and is also beneficial in incorporating local initiatives as part of Sharing City Project.



Similar to Umeå’s “Green Umeå” certification scheme, SMG also endorses non-profit organisations, private enterprises or corporates that provide sharing services with a brand when they meet a certain criterion. This way, the SMC acts as a facilitator to encourage public participation by raising credibility. Umeå may also consider expanding on its “Green Umeå” label to incorporate a wider message of urban sustainability. [19,20]



Recommendations

More proactive municipality-led sharing cities (e.g. Portland, Seoul) have tasked special departments in charge of steering sharing city projects. However, in Umeå, it seems more appropriate for the municipality to take a coordinating role in delegating and monitoring different roles and responsibilities carried out by other sharing actors in the region.



Decision 3: What Kind of Sharing Should Be Prioritised?

There are numerous ways of organising sharing activities and initiatives, which, depending on the nature and type of organising actor, have differing impacts on the local economy and thus the municipality's goals for the SE. The World Economic Forum (WEF) and the city of Guelph have reached similar conclusions on the categorisation of different sharing types, positing that there are two broad types. These two types are:

1. Sharing enabled by for-profit companies – perhaps the most widely-cited examples of this are AirBnB and Uber – and;
2. Sharing created and facilitated by socially- and/or environmentally-driven entities, such as social enterprises or cooperatives [21,22].

For the sake of simplicity, these sharing types are subsequently referred to as *market-driven sharing* and *environmental and/or social purpose-driven sharing*, as per to the categorisation of WEF [21]. The general benefits and drawbacks of market-driven and environmental and/or social purpose-driven sharing are elaborated next.

Market-Driven Sharing

Benefits

The SE can provide opportunities for new kinds of for-profit business models and enterprises to develop. Should these businesses succeed in scaling up, they can generate considerable competition to existing companies and hence potentially enhance efficiency in local markets and drive down prices of goods and services for the benefit of the consumers [21]. Additionally, they may present new employment opportunities for citizens [9].

From the municipality's point of view, larger-scale sharing services organised by market-driven organisations can provide credible alternatives for public procurement. Procurement of sharing services as opposed to goods can generate the municipality significant financial savings (largely due to avoiding the upkeep and running costs that result from ownership of capital goods), as well as contribute to achieving its environmental goals [12].

Drawbacks

As with any disruptive technology or other way of performing a task, market-driven sharing initiatives have the potential of negatively impacting the local economy as well, particularly when they reach a large enough scale. While knowledge on measuring and evaluating this impact is still developing, it is already clear that such effects exist, disrupting incumbent industries and altering living conditions in general in cities across the globe. For example, AirBnB has arguably generated a phenomenon where investors are purchasing properties merely for the purpose of renting them to users of the AirBnB platform, and thus limiting housing supply and driving up property prices and rents in urban regions [21]. Such impacts may be felt differently across the socio-

economic classes, as people with lower incomes may be particularly adversely affected [21].

Furthermore, as with any sharing platform, the challenge of building users' trust towards the service providers can prove a significant barrier to the expansion of market-driven sharing activity [21]. This is particularly influenced by the perceived risks that consumers may see in the use of the service. The perceived risks are higher if consumers do not have confidence in the service providers' ability to ensure 1) a reliable functioning of the service, 2) readily available supply of the service and minimisation of misconduct, such as scams by other users, 3) mismanagement of user data, and 4) unequal treatment of people based on, for example, their sex, race and religion [21].



Examples in Practice

Delbar's example of supporting micro-scale sharing by a for-profit actor

Fortunately for Umeå, its sharing landscape already includes a for-profit company that addresses some of the aforementioned risks in market-driven sharing. Delbar is an Umeå-based for-profit company with strong social and environmental values and motivations. The company has established a platform for people to buy, sell and rent (in which transactions do not necessarily involve use of money but can be free of charge) products and services to and between one another. Delbar's business model has over time been constructed to focus on enabling sharing of products and services among communities (e.g. workplaces, universities and networks in social media) and pre-established contacts, as opposed to transacting between complete strangers. This has largely been driven by Delbar's past experiences, which have shown that users are more likely to share their belongings and services in smaller, more intimate groups where their trust towards each other is likely to be high. To further enhance the users' trust towards the act of sharing, Delbar provides its users an option to purchase an insurance and has set terms and rules for the use of its service, which protect them from misbehaviour in its platform. Therefore, the company proves a good example of how to address some of the common risks involved in market-driven sharing services [23,24].

Environmental and/or Social Purpose-Driven Sharing

Benefits

In environmental and/or social purpose-driven sharing where the organising actors are mainly social enterprises, non-profits, cooperatives and local communities, benefits of sharing are naturally mainly related to social and environmental development. Particularly in the case of smaller-scale sharing such as cooperatives and local communities where the users and service providers often have a closer relationship with one another or even be the very same people, there is a higher chance for community building through increasing reciprocity and social connectivity among citizens [11,22]. Furthermore, decision-making processes, value distribution and ownership of shareable capital tend to be more democratic and equal [22].

Drawbacks

In case of environmental and/or social purpose-driven sharing where responsibility for ensuring the supply of the service tends to be more dispersed, the municipality may face more accountability and transparency issues should the sharing activity result in negative effects to either or both the involved and non-involved parties [21]. This might particularly be the case if public funding is involved in the initiative and if roles and responsibilities for such situations are not well defined [21].

The scalability of this type of sharing can also prove an issue. The municipality might want to make use of environmental and/or social purpose-driven sharing on a city-wide scale to increase the value it generates, but it may run into issues due to possible unwillingness of users to participate in larger-scale initiatives [21]. This is because even users who are driven by social or environmental purposes tend to prefer sharing on a local level over sharing on a city-wide level [21]. However - despite the fact that purpose-driven sharing often hits into problems when scaling up – there are ways to expanding purpose-driven sharing without losing the sense of localness (see case study on *Incredible Edible Todmorden* below).

While not necessarily a drawback per se, municipalities also need to consider that environmental and/or social purpose-driven sharing may not result in as high aggregate monetary benefits as market-driven sharing may [22].



Examples in Practice

Open-source food in Todmorden

In 2007, a woman in a small English village of Todmorden transformed her rose garden into vegetable patch, took down the wall surrounding it and put up a sign telling passer-bys to help themselves for the patch's produce. Soon, the practice spread around the town and began a movement called "Incredible Edible Todmorden". It transformed vast amounts of public spaces into "open-source" gardens with vegetables and edible herbs, including the areas around police and railway stations. Later on, the movement also incorporated a participatory model titled "three plates", which involves three stakeholder groups: education, businesses and community. In this model, businesses donate goods and services, local shops sell planter boxes and schools grow the food. Due to the success of the movement in Todmorden, an Incredible Edible Network was established, and there are now over 100 similar groups across the United Kingdom. What is more, new groups are constantly being founded elsewhere in the world.

Not only does a movement such as Incredible Edible Todmorden connect people better to their food systems, it also brings different types of stakeholder groups under a joint mission that transforms the landscapes in living areas for productive use and fosters a true form of sharing. Furthermore, it showcases how a purpose-driven sharing model can be scaled up and distributed across different areas. [25,26]

What seems to be the key to the success of the expansion of purpose-driven sharing from Todmorden across the globe is to establish multiple similar, but independent sharing service providers (in this case, vegetable patches and/or planter boxes) across different areas, rather than trying to connect an increasing amount of users to only a few providers.

The Local Perspective

Our interaction with various stakeholders familiar with SCU have confirmed that the focus sectors in the development of the sharing services in Umeå municipality ought to be on mobility, spaces, products and services, as well as that a variety of different actors should contribute to the delivery of the services, as outlined in section *Sharing City Umeå*. More importantly, it was highlighted that since current sharing landscape in Umeå mainly consists of municipality- and business-led initiatives that have been implemented from the 'top-down', more sharing services should be developed with the involvement of individual citizens and communities in the future; in other words, a 'bottom-up' approach should be adopted. An additional hope that some stakeholders brought up was that the municipality avoided prioritising market-driven sharing over purpose-driven one in order to ensure that value is created evenly both in financial and non-financial terms.



Recommendations

In Umeå, stakeholders have not expressed preference over which type of actor should drive the development of the SE in the city. Rather, focus seems to be on value creation itself, realised by whichever actor that possesses the most suited resources and capabilities to serve the needs of the society. Bearing this in mind, Umeå municipality ought to prioritise the two kinds of sharing in the following manner:

- *Market-driven sharing*: support companies with community-foci, such as Delbar, and monitor and (if necessary) intervene in sharing initiatives that pose significant risks to the citizens and industry.
- *Environmental and/or social purpose-driven sharing*: rather than attempting to create larger-scale initiatives tied to a single source of sharing, support the development of multiple smaller-scale purpose-driven initiatives across different areas and regions within the municipality.

Decision 4: What Kind of Stakeholders Should Be Engaged?

The SE has disrupted the traditional forms of consumption and governance, redefining the roles that different societal actors have held within the traditional economic system by enabling participation and collaboration through the Internet of Things and People (IOTAP) as well as more simple channels. While no universally agreed mix of actors to advance the development of the SE exists, the literature is largely unanimous on the fact that combinations of the following six classes of actors must be involved [11,21,27]:

ROLE	DEFINITION
Individual users	Engaged in peer-to-peer (P2P) or business-to-peer (B2P) transactions for economic, social or environmental reasons.
For-profit	Profit-oriented actors that buy/sell, loan/borrow, rent, barter, trade/swap, invest, donate/receive donations with the aid of information technologies that significantly lower transaction costs and enable exchange among strangers.
Social enterprise/cooperative	Same activities as for-profit actors, but instead motivated by socially and/or environmentally beneficial outcomes rather than profit.
Non-profit	Same definition as for-profit and social enterprise except they are non-business and motivated by their primary mission or purpose.
Community	Actors at a local or neighbourhood scale, primarily through non-profit or informal models. A greater emphasis is placed on in-person connections and meeting local needs and sustainability goals.
Public sector	Actors with roles defined by high accountability, transparency and legitimacy. They generally use their powers to support or forge partnerships with the actors above to promote innovative forms of sharing.

Table 3. Sharing actors, adapted from various sources [11,21,27].

As such, successful and sustainable growth in the sharing sector should activate relevant actors and encourage collaborative networks between them. Especially for smaller municipalities like Umeå, drawing from the expertise and capacities of stakeholders is crucial to maximise effectiveness of policies in light of limited resources.

The Local Perspective

The multi-stakeholder approach used to prepare the Compass aimed to assess the perspectives of different local actors working with or in relation to the SCU project, incorporating the viewpoints of the **academic community** at Umeå University and **business incubators** which may not traditionally be thought of as sharing actors. However, we did find that they are integral influencers in the development of a sharing city.

The following presents the common themes that emerged from the research findings about stakeholders within and around Umeå. Combining the interview content with an assessment of the local situation as seen from an outsider's perspective, the section suggests how Umeå municipality can think of different actors when pursuing sharing activities. To be most effective, the municipality should perform a more comprehensive stakeholder mapping when possible with a focus on sharing resources and capabilities.

STAKEHOLDER	OBSERVATIONS	CONCERNS
All	Interviews indicated that all actors within the municipality have a role and responsibility to play in the development of the sharing city. The objective for sharing in Umeå could be to focus on service development on the community level and especially where there's sustainability awareness.	Is it possible to reach everyone in the three-year lifespan of the SCU project? Do we need to prioritise some early adopters or specific demographic groups?
Academia	The municipality and University can continue to look for ways to leverage their close relationship and capitalise on the academic interest in local sharing and circular economy.	Can sufficient funding be allocated to ensure researchers have the possibility to study more on sharing?

<p>Participants</p>	<p>Stakeholder viewpoints suggested that the development of sharing be further democratised by granting more influence to a wider array of participants who can better meet their own needs. The current approach is perceived as top-down when bottom-up might be more successful.</p> <p>The planned “SharingHub” and “Sharing Knowledge and Ideas” initiatives will hopefully strengthen citizen-led participation in sharing.</p>	<p>In this case, how could the municipality work to ensure sharing activities promote the <i>public good</i>?</p>
<p>Existing sharing actors</p>	<p>Sharing practitioners are already operating in Umeå outside of the SCU planned activities that could have been tapped for additional expertise in the early stages of the projects. Some interviewees expressed that the municipality could elevate and learn from them, at least establishing lines of communication between them.</p> <p>While the survey received only five responses, all of the respondents expressed willingness to collaborate with the municipality, with one organisation willing to share their data.</p>	<p>These actors may feel threatened by new sharing organisations that replace existing sharing activities, especially if they are municipality-driven.</p>
<p>Immigrants</p>	<p>Immigrants can serve as a potential participant base in developing the SE, whether suppliers or users. Building inclusive sharing activities can serve as a vehicle to better integrate newcomers into the society and motivate social cohesion.</p>	<p>Language can be a barrier for people to engage in sharing services, so it must be ensured that services are delivered in an accessible manner to these people as well.</p> <p>With an increasingly diverse population, it was stressed that communications from the public sector must be flexible and adapt to the audience. Utilising different modes of communication is important to ensure community outreach on sharing and other topics is done effectively.</p>

Incumbent businesses	Unfortunately, this report did not have the chance to gather the views of non-sharing businesses directly. It was understood from indirect sources that a dialogue is taking place regarding circular economy, with Umeå Municipality trying to help businesses explore how they can alter their business model to circularity. In the context of circular economy, we find that the municipality could find ways to help them be involved in sharing, whether looking for opportunities to share their own resources or procure from other sharing actors.	How can these stakeholders be motivated to support sharing and give minimal resistance to new economic development?
Business incubators/accelerators	Umeå has seemingly strong activity in its local offices of national incubators and accelerators. These organisations could be engaged to aid startups that lean towards sharing.	Especially with the social emphasis that embodies SCU, it would be difficult for small-scale socially innovative business models to sustain themselves due to limitations of financial institutions (i.e. high social value does not guarantee loans).

Table 4. Stakeholders, observations and concerns.

During the research and expert interviews, we could see the following three unique demographic groups emerge as a special focus for Umeå: *women, immigrants and students*. Focusing on these target groups would allow the municipality to strengthen its strategy to pursue the SCU project objectives by reaching out to citizens who are most prone to participate (students) [14] and those who are most in need of social connectivity and assimilation with the local population (immigrants), and by advancing the municipality's pioneering work in gender equality (women). This could also have the added benefit of differentiating SCU from other sharing cities and building notoriety for the municipality if it can find innovative solutions to its unique issues. This could truly place Umeå on the global sharing cities map.



Consumer Behaviour Dimension

While people are becoming more aware of environmental problems and the ways their lifestyle choices may affect those problems, they may still have difficulties to alter their behaviour despite being in favour of environmental protection. The so-called 'attitude-behaviour gap' is one aspect of consumer behaviour that threatens the expansion of the SE. This and other mentions of consumer behaviour surfaced during a number of interviews.

From a critical standpoint of the SE as it is today, some argue that the values, norms and habits expressed by consumers often inhibit their participation in sharing activities. Out of the desire to be efficient and act in ways that are most convenient, we may be reluctant to sacrifice ownership of our possessions for a model based on shared access out of the possibility that we will not have 'on-demand' access. If a potential sharing activity does not minimise the transaction costs of trading goods or services, the less viable it will be. Utility, cost savings and service quality are often found to be some of the largest determinants of consumer satisfaction and participation in sharing services [28].

A considerable shift in consumer behaviour may need to take place before people are willing to participate and share a wider array of goods and services. Umeå and other sharing cities are continuing to search for appropriate strategies that helps to shift behaviour while also allowing sharing to grow naturally and normalise within society.



Examples in Practice

Enhancing social cohesion and employment

"Hacker spaces" or "maker spaces" are places with technology equipment where typically youths are provided opportunities to learn programming, coding and other useful skills for today's job market. Urban TxT (Teens Exploring Technology) is one such example in Los Angeles aimed at inner-city at-risk youths (exploringtech.org). The programme focuses on young men of colour between the ages of 11-17 and places them in teams to learn coding and practical life skills like collaboration and ideation of business ideas. The programme has also improved their school performance and abilities to advance into higher education. [29]

See also: Connected Community HackerSpace (<http://www.hackmelbourne.org/>) in Melbourne, Australia.



Recommendations

“Maker spaces”:

Umeå might envision a similar initiative as the above case study, Urban TxT, that focuses on immigrant communities, building connections between volunteers and new communities. We imagine that this could be an attractive initiative that draws funding from a network of local organisations. It could not only empower people and communities but also provide opportunities for the growth of innovative ideas, not least in the development of new kinds of sharing.

Stakeholder mapping:

Conduct a stakeholder mapping to gain a full understanding of local sharing possibilities.

Focus stakeholder groups:

Young people are a good target for sharing since they are more likely to participate [14] due to their familiarity with IT platforms and because normalising behaviour at a young age is one way to encourage the expansion of sharing. Relating to gender, research has found that traditional gender roles are expressed in the type of sharing activities men and women choose to participate in [14]. The municipality can work to find solutions to these issues by employing gender equality strategies or gender equality criteria for the sharing organisations that operate in the area. The municipality should also seek ways to grant access to sharing regardless of users' ethnic, educational and economic backgrounds, since participation leans more towards since participation leans more towards white, socioeconomically advantaged populations [14]. We suspect that this type of work would create strong impact in social cohesion and generate positive spillover effects for the municipality as a whole.

Decision 5: What Kind of Actions Should the Municipality Take?

There are a number of actions that Umeå municipality can choose to shape the content and steer the direction of the local SE and align it with the municipality's SCU-related goals. Considering the previous areas of decision-making, options should be carefully evaluated based on likely benefits and mitigate those with any potential adverse outcomes. This is especially so in the young phenomenon of the SE where there has been limited measurement of economic, social and environmental impacts, among others. The main actions municipalities often choose to take to intervene are summarised and categorised according to the level of effort it requires from the municipal organisation in table 5 below.

AMOUNT OF RESOURCES REQUIRED FROM MUNICIPALITY	MUNICIPAL ACTIONS
Small	<ul style="list-style-type: none"> • Promoting and raising public awareness of sharing services • Providing marketing support for service providers
Medium	<ul style="list-style-type: none"> • Providing financial support and incentives to service providers • Supporting cooperation and networking between other actors • Providing advice on service development and/or technical support to service providers • Monitoring and/or evaluating the level of participation and impact of sharing • Municipal participation in sharing through: <ul style="list-style-type: none"> ○ Procuring sharing services, or; ○ Forming public-private partnerships
Medium to large	<ul style="list-style-type: none"> • Municipal provision of sharing services • Investing in supporting infrastructure (digital and/or physical) to enable the delivery of sharing services • Regulating the SE with municipal standards, regulations and bylaws through: <ul style="list-style-type: none"> ○ Revision of existing framework, or; ○ Experimentation with new, temporary regulatory solutions

Table 5. Municipal actions organised according to the amount of resources they require from the municipality [7,22].

The Local Perspective

Interaction with various stakeholders allowed the team to identify that some municipal actions are preferred over others, as seen in figure 4.

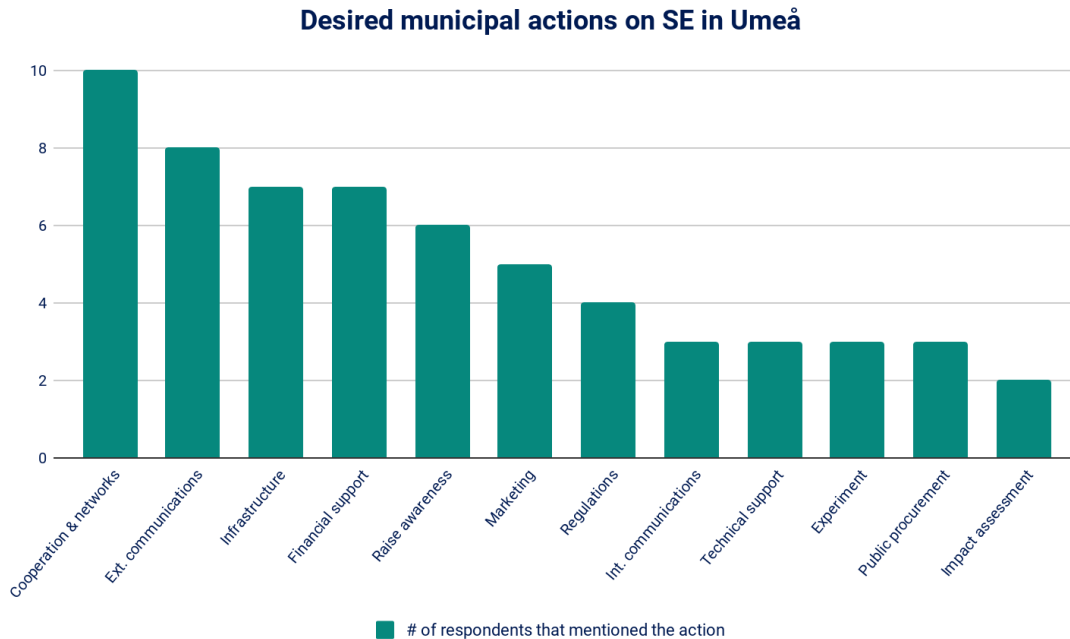


Figure 4. Desired municipal actions to intervene in the local SE by actors in Umeå¹.

In line with the preferred direction of municipal approach mentioned in Decision 2, figure 4 shows that collectively, stakeholders placed highest importance on the facilitation of networking and cooperation between different urban actors. Stakeholders mainly requested bringing together different kinds of actors to co-create solutions for SCU. According to one interviewee, the best way to achieve this is to physically bring the stakeholders together (in some cases repeatedly) to ensure that communication and collaboration is established. Nevertheless, many also brought up the importance of digital solutions for enabling networking and cooperation. Furthermore, some actors also raised the importance of improving cooperation within Umeå's municipal organisation. This could be, for example, in terms of data, result and experience sharing between departments and projects, so that work in the municipality is performed as efficiently as possible when it comes to, say, different environmental projects.

Other, often mentioned actions included investing in supporting infrastructure (for example, physical meeting spaces for people to meet, network or set up sharing facilities), providing financial support to existing and future service providers, and helping in raising public awareness of sharing services and marketing the sharing

¹ During the data collection phase, stakeholders were asked what in their opinion should be the best way Umeå municipality can support the local SE, yielding the illustrated responses. **Note:** each interviewee was free to state as many municipal actions as they wished, while the respondents to the questionnaire were asked to choose a maximum of three actions for best municipal support actions from a list of fixed options (the respondents were allowed to specify other kinds of municipal actions by selecting "Other", however).

services in the municipal area. Based on the received survey responses, the existing sharing service providers most commonly wish for municipal support in the form of public procurement of sharing services, revision of municipal regulations, standards and bylaws, helping in raising public awareness of sharing services and provision of marketing support.

It must also be pointed out that the second most mentioned action is improving the communications related to SCU towards external (i.e. non-affiliated) parties (this is noted by “Ext. communications” in figure X). Despite not being included in the list of common municipal SE-related actions in table X, this should not be overlooked by the municipality. In the majority of instances where this action was mentioned, respondents referred to the need for clarifying SCU’s goals, objectives and desired outcomes to external parties. Furthermore, several stakeholders emphasised the need for forming a coherent message around SCU; a vision and a narrative that are informed by Umeå’s own, unique characteristics and the viewpoints and needs of all relevant stakeholders. Some of the keywords suggested by the stakeholders include *well-being*, *trust*, *inclusiveness* and *social well-being*. Additionally, it was highlighted that this communication needs to be conducted in a transparent manner – for example, informing the affected parties not only of the positive, but also of the potential negative impacts – so that the locals can find the initiative trustworthy, convincing and realistic. Some respondents also noted that this communication needs to utilise simple language that is understandable to most, but also portray SCU as an attractive initiative that can spark the interest of large masses to contribute to the achievement of the initiative’s objectives.

Thus, it is evident that no single action is sufficient for the municipality to support the local SE, but a range of tools are needed. Furthermore, based on the categorisation presented in table X, intervention will require the municipality varying amounts of resources.



Examples in Practice

Enhancing communication and cooperation through an IT platform in Gothenburg

Started in 2014 from a MapJam, the *Smarta Kartan* (Smart Map) of Gothenburg took its current shape after the formalisation of a civil-public partnership in 2016 between the founding party, Collaborative Economy Gothenburg, and the Consumer and Citizen Services Administration of the City of Gothenburg. The Smart Map is updated on a continuous basis and shows current and future activities – for example, bike kitchens, digital platforms and give-away shops – but also networks and events across the city, such as clothing swap days. The aim of this is to facilitate networking of people and initiatives and forming of communities, as well as to promote access as opposed to ownership. At the same time, it provides added visibility to service providers, which now add up to over 100 on the platform. The Smart Map earned the City of Gothenburg the Eurocities 2017 Circular Economy Participation award in 2017. [30,31]



Recommendations

Based on the collected views and perspectives from various stakeholders in Umeå and an analysis of their urgency to the future, balanced development of the SE in the municipality, we would like to propose Umeå municipality the following set of actions to be prioritised on in the **short- to medium-term**. It is pointed out that many of these actions do not require extensive resource allocations or investments from the municipality to be realised:

- Form a coherent narrative for SCU-related communications;
- Provide help in raising public awareness of sharing services and ensure that the existing sharing service providers are made visible as part of the SCU communications efforts towards external parties;
- Provide further marketing support to existing and future sharing service providers by, for example, either establishing a label of municipal recognition of sharing services, or by extending the “Green Umeå” brand to include also local sharing initiatives;
- Invest in supporting infrastructure (such as physical and digital meeting spaces for actors to create and share services);
- Provide financial support and incentives to existing and future service providers, and;
- Revise any prohibiting internal municipal standards and requirements to allow further procurement of sharing services.

In the **long-term**, the municipality is encouraged to look into more resource-intensive, but nevertheless important, actions to further support the local SE, such as:

- Revision of standards, laws and regulations that affect sharing service providers through, for instance, cooperating with other cities (both affiliated and not affiliated) with the SCS programme and communicating with national legislators when necessary.

Decision 6: How Will the Roles and Responsibilities Be Allocated?

Since the nature and scope of the SE extends beyond the traditional roles and responsibilities of municipal government, it is important to align the government's roles with other sharing actors and its citizens [22]. While it may be inevitable for the municipality to steer the social discourse towards the establishment of a sharing city in the initial phase, the role of the municipality may shift over time depending on the level of maturity of sharing activities, as well as changing priorities, capacities, risks or benefits [11].

By involving different actors within the society, the municipality can apportion ownership of the SE without having to act as a formal control tower and, instead, advance towards a collaborative governance structure. While each group of sharing actors pursues their own interests, the municipality can assess the potential benefits and the risks in relation to its greater municipal objectives and guide the activities in a desirable direction. While the regulatory dimension is also a substantial part of governance, this factor is set aside in the decision-making considerations because local governments are constrained in their capacity to steer regulatory changes. Otherwise, some of the potential roles and responsibilities that could be performed by different actors are listed in table 6 below.



Municipality	<ul style="list-style-type: none"> • Coordinate and support different sharing projects and initiatives with a range of local actors • Provide incentives and disincentives on sharing solutions in consideration of the municipal objectives • Providing an information database of sharing services and activities • Leading sharing activities within the municipality • Conduct and compile policy evaluation for monitoring purpose
Non-profit/social enterprises/NGOs	<ul style="list-style-type: none"> • Advance social and environmental sustainability through their activities • Effective in delivering values to often disadvantaged demographic groups (e.g. women, low-income, disabled, immigrants)
For-profit businesses	<ul style="list-style-type: none"> • Bears the responsibility to meet regulatory response • Diversity the portfolio of sharing services and goods • Offer creative sharing solutions and marketing methods
Academia	<ul style="list-style-type: none"> • Research the potential sharing solutions elsewhere • Communicate the progress on SE in Umeå on the international stage • Conduct policy evaluation
Local communities	<ul style="list-style-type: none"> • Engage in sharing activities both as peer suppliers and users • Offer community-specific sharing solutions within the policy umbrella

Table 6. Roles and responsibilities of different stakeholder groups.

The Local Perspective

Currently, Umeå municipality bears a heavy responsibility in driving the sharing initiatives, since in five of the six existing sharing initiatives, the municipality is either leading the initiative or contributing to its delivery. The Department of Environment acts as the coordinator of the Sharing City Umeå project and different initiatives are allocated to relevant departments within the municipality. For example, Fritidsbanken is supported by the Leisure Department and U-bike is managed by Streets and Parks. As of now, there are five departments that are involved on the SCU project. Though no major concern over the lack of leadership was identified, there were some concerns about the how the work is coordinated in consideration of many ongoing environmental

initiatives that may sometimes overlap. In this dimension, it was raised by a member of staff from Strategic Planning Department that it is not absolutely clear how the results of the recent consumption survey will be utilised by each project and which department(s) will monitor the progress.

A number of stakeholders in different organisations expressed their interest and commitment to collaborate with the municipality in implementing the SCU project. Interview findings have demonstrated that there already exists a high level of co-working practices between the municipality and different actors in the municipality. Currently, there are not many existing for-profit businesses in the scene, so the responsibility of offering a wealth of sharing services falls under the municipality. However, once critical mass is achieved with population growth

and increased participation, greater role of for-profit businesses can be anticipated in the future. Yet, for now, non-profit organisations are more visible in taking up social responsibility. For example, Umeå's model of Fritidsbanken is being developed with heavy social objectives such as offering para-sports equipment and providing affordable leisure opportunities for low-income households.

To achieve more collaborative roles and functions to be performed by a wider society, elements of openness and inclusivity was further stressed, whereby the entire population is included. Because there are existing sharing practices on local level in the informal manner, they can be brought in as part of the SCU projects and the municipality, as the enabler, can also contribute to amass the grassroots participation to accumulate the critical mass for thriving SE.



Examples in Practice

Collaborative Governance – experimentation by LabGov in Italy

Bernadi (2015) elaborates on the design considerations and success factors for collaboration. The rationale builds upon co-creating a city with its members to meet the needs and takes the standpoint that the local government is not the only player in shaping the urban environment. The *five souls* are identified as crucial actors:

Five souls

- Citizens and social innovations
- Businesses (profit, low-profit, non-profit)
- Cognitive institutions (schools, universities, research centres, academia, cultural institutions)
- Civil society organisations (social parties and third-sector actors)
- Public authorities

Features for successful collaboration:

- Commitment
- Alignment of visions
- Transparency

- Trust
- Flexible leadership and a shared authority
- Local government as a facilitator

The theory behind the success factors is explained as follows:

Emphasis is placed on the involvement of all stakeholders across sectors, who have an interest and commitment to create change. If visions of the involved stakeholders are aligned, then trust building will increase in its potential. The idea is that the co-creating between actors is to find new ways. Thus, a certain flexibility in leadership is needed, where the local government both guides but also shares the authority. Therefore, the local government is considered as a facilitator rather than a director.

See cases of application:

- The city of Bologna - Public Collaboration between Citizens and the City for Urban Commons - resulted in policy development.
- Co-Manuta - "Culture as a Commons" - resulted in Collaborative Governance Pact. [15]



Recommendations

More proactive municipality-led sharing cities (e.g. Portland, Seoul) have tasked special departments in charge of steering sharing city projects. However, in Umeå, it seems more appropriate for the municipality to take a coordinating role in delegating and monitoring different roles and responsibilities carried out by other sharing actors in the region.

Decision 7: How Can Implementation and Evaluation of the SE Be Performed?

Opportunities are present for small cities to experiment with the SE so that key learnings can be made. The evaluation on the progress of SE is important because local governments should be able to identify that the sharing projects contribute to achieving the greater policy objectives [11]. Hence, municipalities should bear in mind of the desired impacts and relevant evaluation criteria at the stage of designing and planning sharing cities.

Currently, sustainability assessments and evaluation practices for sharing activities remain little researched. Further, there is widespread concern over conducting a holistic impact assessment of SE mainly because of the lack of consensus on the extent of SE, as well as limited access to data and difficulties with measuring rebound effects of sharing activities [32]. For example, one of the most cited difficulties is measuring the positive environmental impact of car-sharing because the saved money could then be spent on other environmentally negative activities such as flying. However, statistical error can be reduced by setting clearly defined impact categories, further subdivided into different components for detailed assessment. It is also helpful to conduct sector-level analysis to gain a more accurate picture, such as focusing on accommodation and mobility. Compared to larger cities, it could be logistically more simple in a smaller city to monitor actors and evaluate their impact on regular basis, which would facilitate the modification of policy directions and detailed activities in the desired direction without delay.

In June 2016, the European Committee of the Regions secretariat proposed a set of potential criteria that impact assessment on SE may encompass to assist the work of European Parliament's Committee on Economic and Monetary Affairs (ECON) Commission on guiding SE. Some of these criteria may be adopted by local governments, and is presented in table 7 below.

ECONOMIC	SOCIETAL
<ul style="list-style-type: none"> • Economic activity • Purchasing power • Sectoral analysis (Mobility, Accommodation, etc.) 	<ul style="list-style-type: none"> • Social cohesion • Sectoral analysis (Women, immigrants, low-income, disabled)
GOVERNANCE	ENVIRONMENTAL
<ul style="list-style-type: none"> • Tax revenue • City budgets • Administrative burden 	<ul style="list-style-type: none"> • Resource efficiency • GHG emissions

Table 7. Potential criteria for Impact Assessment on SE [33].

The Local Perspective

It became evident during interviews that the motivation for Umeå to undertake the SCU initiative was the belief that it could contribute to achieving sustainable development that the municipality is aiming for. However, the stakeholders also put forth their concerns with regards to the SE concept and specifically its sustainability impacts. It was stressed that SCU activities should be evaluated from a critical sustainability standpoint.

Efforts to align and coordinate SCU with ongoing environmental initiatives (Low Carbon Place and Smart City RUGGEDISED) within the municipality, to our understanding, have been taken to certain extent. For instance, the consumption behaviour study conducted earlier this year on the citizens of Umeå as part of the Low Carbon Place initiative included questions relating to e.g. attitudes towards sharing and current and potential future sharing behaviour patterns. Nevertheless, after our discussion with the official in charge of the study, it was evident that it is yet unclear within the municipality as to how the data was going to be utilised by other departments and initiatives, such as SCU.

Considering the potentials for SCU activities evaluation, SE practitioners within Umeå appeared to be open towards collaboration with the municipality, some also stating that they would be willing to share their data. Overall, there seemed to be a collective interest to place focus on aggregated learnings from SCU activities to enable further assessment and development within SE in Umeå but also considering providing learnings for other cities.



Examples in Practice

Sustainability filter of SE activities in cities

The sustainability filter developed by One Earth aims to help local governments to ease the considerations of SE engagement in a city context. Six areas of questions covering sustainability aspects are established in order to assess SE activities.

6 key guiding questions:

Living within ecological means

- Does the SE activity support absolute reductions in energy and materials flows to live within our ecological means?

Resilience

- Does the SE activity enhance resilience and climate adaptation?

Natural systems

- Does the SE activity protect and restore natural systems?

Equity

- Does the SE activity advance equity and social inclusion and embrace diversity?

Prosperous local economies

- Does the SE activity advance economic vitality and diversity, a level of self-reliance, and decent jobs?

Quality of life

- Does the SE activity advance social connectivity and wellbeing for all? [11]



Examples in Practice

Amsterdam

Amsterdam provides an example of how academia can take a more proactive role in conducting policy impact assessment. Although it may not be directly transferable for smaller cities like Umeå, lessons and practices of urban impact assessment can be useful in devising evaluation criteria in the planning stage of sharing city.

Amsterdam established a think tank named "ShareNL" in 2013 to activate research in sharing city and its impact assessment in collaboration with different sharing actors ranging from governments, research institutions, corporations and start-ups.

ShareNL carries out a number of researches and functions as a library of collaborative economy, but most importantly, they conduct impact assessments of sharing activities both on city-level as well as on actor-levels. They also prepare assessment reports for the Ministry of Infrastructure and Environment on economic and environmental impacts of SE on regular basis. [34]



Recommendations

- **Experiment and test:** Currently, in Umeå, sharing activities are few in number so there is great local potential for experimentation in how to measure sharing impacts on sustainability/environmental indicators. Umeå municipality can initiate this process by devising basic performance indicators itself or develop them in collaboration with local sharing organisations to evaluate impacts.
- **Alignment of city initiatives:** coordinate and align environmental initiatives and SE initiatives to ease the evaluation process and at the same time evaluate them against the greater sustainability aims and priorities.
- **Collaborate with the University and Sharing actors:** continued research and dialogue is needed on evaluation methods of SE in cities. The University could also help shaping tangible results against overall sustainability aims. Collection of data from local SE actors could enable further necessary background data to base evaluation upon.
- **Prioritise learning:** enable aggregated learnings from SE activities that can be shared with relevant actors and cities.

Summarised Recommendations

This section provides a summary of all the recommendations provided in this report under each sharing city element.

SHARING CITY DECISION	RECOMMENDATIONS
<i>Governance approaches</i>	<ul style="list-style-type: none"> • Governance approach should bear in mind of the desirable form of SE in Umeå after the project comes to an end because the sharing city should be able to self-sustain in the absence of heavy municipal support.
<i>Type of sharing to prioritise</i>	<ul style="list-style-type: none"> • Sharing services in Umeå should be a mixture of grassroots-level market-driven and purpose-driven providers. For example: <ul style="list-style-type: none"> ◦ Support companies with community-focus, such as Delbar, and monitor and intervene in potentially risky market-driven sharing initiatives, such as AirBnB. ◦ Support smaller-scale purpose-driven initiatives across different areas within the municipality.
<i>Stakeholder engagement</i>	<ul style="list-style-type: none"> • Conduct stakeholder mapping over time to gain a full understanding of local sharing possibilities. • Pursue a participant focus (women, immigrants and students) that helps make sharing activities more widespread and distinguishes Umeå's sharing strategy from others.
<i>Municipal actions</i>	<p>Short- to medium-term actions</p> <ul style="list-style-type: none"> • Form a coherent narrative for SCU-related communications. • Provide help in raising public awareness of sharing services and ensure that the existing sharing service providers are made visible as part of the SCU communications efforts towards external parties. • Provide further marketing support to existing and future sharing service providers. • Invest in supporting infrastructure (such as physical and digital meeting

	<p>spaces for actors to create and share services).</p> <ul style="list-style-type: none"> • Provide financial support and incentives to existing and future service providers. • Revise any prohibiting internal municipal standards and requirements to allow further procurement of sharing services. <p>Long-term actions</p> <ul style="list-style-type: none"> • Revision of standards, laws and regulations that affect sharing service providers through, for instance, cooperating with other cities (both affiliated and not affiliated) with the SCS programme and communicating with national legislators when necessary.
<p><i>Design considerations: roles and responsibilities</i></p>	<ul style="list-style-type: none"> • Adopt a coordinating role by delegating different roles and responsibilities to other sharing actors in the region and monitoring them.
<p><i>Implementation and evaluation</i></p>	<ul style="list-style-type: none"> • Experiment with sustainability indicators. • Align environmental and SE initiatives to ease the evaluation process. • Collaborate with Umeå University and sharing actors to collect data and develop on evaluation methods of SE. • Share learnings from SE activities with relevant actors and cities.

Conclusion

The team found Umeå to be a small city with big ambitions and great opportunities to build a unique and thriving sharing city. Among the numerous actors interviewed, all were passionate and driven to collaborate in the hopes of making the municipality a better place to live and work for residents and visitors alike. Municipal actors should continue to capitalise on this collaborative spirit by maintaining high levels of cooperation with traditional partners and seeking out new ones, while maintaining sustained communications about the importance of sharing.

Having conducted the research prior to the official launch date of the programme, Sharing City Umeå so far has the right set of motivations and appears to be on the right track during the early stages of planning and development to achieve success. Having said that, it is important that the strategic planning of the municipal position and approach is conducted in advance to assist the development of the sharing city. The set of different combinations of decisions offered in this report will serve as a useful guide, elaborating on the available options and demands from existing stakeholders in Umeå. The findings suggested that Decisions 1-5 have been given considerable attention thus far, whereas Decision 6-7 will demand a greater focus on the part of the municipality to develop a guiding framework for a holistic planning of the sharing city. Finally, it is important to reiterate that this set of decisions will in practice come in a fluid, organic manner and adjustments are in order in different stages of development. What is most important is to balance the public policy goals with demands from a wide array of stakeholders and resource availability.

References

1. Stephany, A. (2015). *The business of sharing: Making it in the new sharing economy*. Springer.
2. McLaren, D., & Agyeman, J. (2015). *Sharing cities: a case for truly smart and sustainable cities*. MIT Press
3. Sharing Cities Alliance. (n.d.). Available from <https://sharingcitiesalliance.com/#about>
4. Botsman, R. (n.d.). The currency of the new economy is trust. Retrieved from https://www.ted.com/talks/rachel_botsman_the_currency_of_the_new_economy_is_trust
5. Umeå Kommun. (n.d.a.). *Fakta och siffror*. Retrieved from <http://www.umea.se/mer/faktaochsiffror.4.b68a4ef11c312891ac800015457.html>
6. Umeå Kommun. (n.d.b.). *Kommunfakta*. Retrieved from <http://www.umea.se/umeakommun/kommunochpolitik/kommunfakta.4.bbd1b101a585d704800061691.html>
7. Wagner, T., Kuhndt, M., Lagomarsino, J., & Mattar, H. (2015). Listening to Sharing Economy Initiatives. Collaborating Centre on Sustainable Consumption and Production, Akatu Institute for Conscious Consumption, Columbia Business School, Ouishare, Shareable. Retrieved from https://www.scp-centre.org/wp-content/uploads/2016/05/Listening_to_Sharing_Economy_Initiatives.pdf
8. Schor, J. (2016). Debating the Sharing Economy. *Journal of Self-Governance and Management Economics*, 4(3), 15.
9. Finck, M., & Ranchordás, S. (2016). Sharing and the City. *Vanderbilt Journal of Transnational Law*, 49(5), 1299–1369.
10. L. Persson, personal communication, April 16, 2018
11. Jones, S., Belmonte, R., Leigh, K., Pearson, E., Hunter, J., Luk, V., ... Rohrlück, M. (2015). Local Governments and the Sharing Economy. *One Earth*.
12. Ganapati, S., & Reddick, C. G. (2018). Prospects and challenges of sharing economy for the public sector. *Government Information Quarterly*, 35(1), 77–87. <https://doi.org/10.1016/j.giq.2018.01.001>
13. Hennepin County. (n.d.). *Fix-It Clinics*. Retrieved 26 April 2018, from <https://www.hennepin.us/residents/recycling-hazardous-waste/fix-it-clinics>
14. Andreotti, A., Anselmi, G., Eichhorn, T., Hoffmann, C. P., & Micheli, M. (2017). Participation in the Sharing Economy. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2961745>
15. Bernadi, M. (2015). *Sharing Cities. Governance models and Collaborative Practices in the Urban Contexts (Ph.D. Thesis)*. University of Milano-Biocca, Italy.
16. Bulkeley, H., & Kern, K. (2006). Local Government and the Governing of Climate Change in Germany and the UK. *Urban Studies*, 43(12), 2237–2259. <https://doi.org/10.1080/00420980600936491>

17. Emtairah, T., McCormick, K., Leire, C., Palm, A. & Dehod, N. (2017) Fossil fuel free municipalities in Sweden. Analysing modes of governing. Report No 2017:05B, f3 The Swedish Knowledge Centre for Renewable Transportation Fuels, Sweden. Available at www.f3centre.se.
18. Robert, A., & Kamal-Chaoui, L. (2009). Competitive Cities and Climate Change (OECD Regional Development Working Papers No. 2009/02). <https://doi.org/10.1787/218830433146>
19. Sharehub. (n.d.). *How is Works?* Retrieved from: http://sharehub.kr/sharecityseoul/howitworks_5key.do
20. Sharehub. (n.d.) Available from: <http://sharehub.kr/>
21. World Economic Forum. (2017). *Collaboration in Cities: From Sharing to 'Sharing Economy'*. Retrieved from http://www3.weforum.org/docs/White_Paper_Collaboration_in_Cities_report_2017.pdf
22. City of Guelph. (2017). *Navigating the sharing economy: A 6 decision guide for municipalities*. Retrieved from <http://guelph.ca/wp-content/uploads/NavigatingTheSharingEconomy.pdf>
23. Delbar. (n.d.). Available from <https://www.delbar.se/>
24. N. Jansson, personal communication, April 9 and 17, 2018
25. Shareable. (2018). *Sharing Cities: Activating the Urban Commons*. Available from <https://www.sharingcities.net/>
26. Incredible Edible Todmorden. (n.d.). Available from <https://www.incredible-edible-todmorden.co.uk/projects>
27. Almirall, E., Wareham, J., Ratti, C., Conesa, P., Bria, F., Gaviria, A., & Edmondson, A. (2016). Smart Cities at the Crossroads: New Tensions in City Transformation. *California Management Review*, 59(1), 141–152. <https://doi.org/10.1177/0008125616683949>
28. Möhlmann, M. (2015). Collaborative consumption: determinants of satisfaction and the likelihood of using a sharing economy option again. *Journal of Consumer Behaviour*, 14(3), 193-207.
29. Teens Exploring Technology. (n.d.). Retrieved April 22, 2018, from <http://exploringtech.org/>
30. Shareable. (n.d.) *12 Reasons Why Gothenburg is an Amazing Sharing City*. Available from <https://www.shareable.net/blog/12-reasons-why-gothenburg-is-an-amazing-sharing-city>
31. Smarta Kartan. (n.d.). *About*. Available from <http://smartakartan.se/>
32. Frenken, K., & Schor, J. (2017). Putting the sharing economy into perspective. *Environmental Innovation And Societal Transitions*, 233-10. doi:10.1016/j.eist.2017.01.003
33. ECON Commission. (2016). *Urban Impact Assessment: Sharing Economy*. Retrieved from: <https://cor.europa.eu/en/events/Documents/COTER/TIA/sharing-economy.pdf>
34. shareNL. (n.d.). *Research*. Retrieved 26 April 2018, from <http://www.sharenl.nl/research/>

Appendices

Appendix 1.

List of Interviewees

1. Aschan, Carina, Strategic planning (Project RUGGEDISED), Umeå municipality, 16.4.18
 2. Filipsson, Roger, Executive Director, Coompanion, 13.4.18
 3. Gemzell, Anna, Project Manager Low Carbon Place, Umeå municipality, 12.4.18
 4. Gustafsson, Linda, Gender Equality Strategist, General Planning, Umeå municipality, 11.4.18
 5. Hedman, Peter, Uminova Innovation, 12.4.18
 6. Hörnemalm, Peter, Fritidsbanken, Umeå municipality, 16.4.18
 7. Jansson, Niklas & Kressner, Pontus, Delbar, 9 and 16.4.18
 8. Levén, Per, Information Technology Department, UMU, 12.4.18
 9. Lundh, Jonas, Viva Resurs, 13.4.18
 10. Minoz, Åsa, Viable Cities & Sharing Cities Sweden, 20.4.18
 11. Nordlund, Annika, Psychology Department, UMU, 11.4.18
 12. Näslund, Philip, Environmental Coordinator, Umeå municipality, 12.4.18
 13. Persson, Lisa, Traffic Planner, Streets and Parks Division, Umeå municipality, 16.4.18
 14. Rönngren, Margareta, Politician, Umeå municipality, 13.4.18
 15. Sten-Holmqvist, Katrin, contact person between UMU and Umeå municipality, UMU, 12.4.18
 16. Sundström, Ebba, statistician, Umeå municipality, 16.4.18
 17. Vidje, Laura, Consultant, Esam, 11.4.18
 18. Westman, Ingrid, Business Advisor, ALMI Företagspartner, 13 April 2018
-

Appendix 2.

Partners and Companies

ALMI Företagspartner	https://www.almi.se/nord/
Co-Grow	http://www.co-grow.se/
Coompanion	https://nord.companion.se/
Cykeljuntan	http://cykeljuntan.nu/
Delbar	https://www.delbar.se/
Esam	http://esam.se/
Fritidsbanken	https://www.fritidsbanken.se/
Hygglo	https://www.hygglo.se/
Koldioxidståla Platsen	http://www.umea.se/umeakommun/byggaboochmiljo/samhallsutvecklingochhallbarhet/klimatmiljoochhallbarhet/koldioxidstaplaten.4.52bf99391587335a1f4c706.html
RUGGEDISED	http://www.ruggedised.eu/cities/umeaa/
Sharing Cities Sweden	https://www.sharingcities.se/
SpaceTime	https://www.spacetime.se/
Umeå Food Swap	https://www.facebook.com/events/293077744469602/

Umeå University	http://www.umu.se/?languageld=3 Technology Department Psychology Department
Umeå Municipality	http://www.umea.se/umeakommun.4.1821d6e811c67c7e79580004672.html General Planning Division Environmental Division Culture and Leisure Division Streets and Parks Division
Uminova Innovation	https://uminovainnovation.se/en/start/
Viva Resurs	http://www.umea.se/umeakommun/kommunochpolitik/kommunensorganisation/verksamheterochstodfunktioner/tillvaxt/vivakompetenscentrum/arbetsmarknad/varaavdelningar.4.bbd1b101a585d704800071574.html

Appendix 3.

Overview of Questionnaire Respondents

Name of organisation	Hygglo
Position	CEO
Type of organisation	For profit, Social Enterprise
Business Sector	Sharing products/Services
How long in the business	1-3 years
Products/Services offered	An online-sharing platform
Description	Peer2peer online rental service for everyday good, tools, gardening tools, baby stroller etc.

Name of organisation	SpaceTime Communication
Position	Founder & CFO
Type of organisation	For-profit
Business Sector	Mobility
How long in the business	5+ years
Products/Services offered	Services
Description	Vi har Sveriges första KM tjänst (Kombinerad Mobilitet), MAAS.

Name of organisation	Co-Grow
Position	Team Member
Type of organisation	Non-profit
Business Sector	Garden sharing
How long in the business	1-3 years
Products/Services offered	An online sharing platform
Description	Co-Grow is a garden sharing platform and a movement with the vision that everyone can grow food and take back the kitchen garden that was common before.

Name of organisation	Umeå Food Swap
Position	Founder
Type of organisation	Non-profit
Business Sector	Sharing products/Services
How long in the business	1-3 years
Products/Services offered	An online sharing platform
Description	Created an online platform on Facebook to enable food sharing in order to minimise food waste. We also organise actual food swap events.

Name of organisation	Umeås cykeljunta
Position	Member of the board
Type of organisation	Non-Profit
Business Sector	Sharing and spreading of knowledge and skills; sharing of tools
How long in the business	1-3 years
Products/Services offered	Services
Description	We fix bicycles together and organise events for common bike repairing. We want people to be able to take care of their bikes themselves by learning from each other, sharing knowledge and skills. We have tools for the participants to use. Everything is free, to allow everyone to be able to join in, no matter one's economic situation.

Appendix 4.

Questionnaire Responses

Note: In the below table, '#' denotes the number of times the response option was chosen in the questionnaire. The options that yielded zero responses have been omitted from the table.

1	Why is your organisation most interested in sharing?	#
	Environmental benefits it generates	3
	Social factors (e.g. encouraging collaboration and trust)	2
2	What are the main challenges or barriers to growth your organisation faces? (Choose up to three options)	#
	Funding	4
	Matching supply and demand on a small geographical area	1
	Limited participation from consumers	2
	Limited market segment	1
	Difficult finding suitable space for ourselves with low rent	1
	Administrative (e.g. managing documents, approvals, bureaucracy)	1
3	How has Umeå municipality supported your organisation's participation in the sharing economy so far? (Choose all that apply)	#
	None	3
	Provided financial support (incl. subsidies, loans schemes or tax exemptions)	1
4	How aware are you of Umeå's vision of developing a sharing city?	#
	Haven't heard about it	2
	Highly aware	2
	Heard about it	1
5	What is your organisation's initial and immediate reaction to Umeå's sharing city vision?	#
	Very positive	3

	Somewhat positive	1
	None	1
6	Please provide more details on your previous answer.	
	<p>Great vision, execution till be the tricky part.</p> <p>We would like to start a formal cooperation with the Umeå municipal and together create more kitchen garden gardens for households and operations in al sectors. We are right now making a business plan with the aim to develop the Co-Grow platform for including commercial growers. We have just started a cooperation with scientists at Södertörns högskola about this. It would be lovely if Umeå municipal would like to be the first test for this platform in both its urban and rural areas.</p> <p>We would love to be an active part of this because the idea is to reduce food wastage in the city of Umea. More awareness, venues for food swaps and space/shelves in common public areas could do wonders for the project.</p> <p>We are happy to see that the importance of sharing is being acknowledged, but the focus is often framed for commercial actors with fancy business models. This makes it irrelevant for non-profit organisations that strive for other values. We instead would hope that Umeå wants to make a real difference for the civic society and strengthen the many existing not for profit initiatives, give them proper long-term support and help them grow and develop.</p>	
7	Please state the level of action your organisation would hope for from Umeå municipality.	#
	Collaborative	4
	Speed is key, we will not for a long time have funding that exceeds 12 month, a project cant take more than 2-3 month at max. We focus on development that we can close in 1 to 3 days. Politic and municipalities are usually a slow to partner up with.	1
8	How could Umeå municipality best support your organisation's participation in the sharing economy? (Choose up to three options)	#
	Provide aid in raising consumer awareness	2
	Experiment with e.g. new (temporary) regulations, standards, bylaws, initiatives and policies	2
	Revise municipality's internal requirements to prioritise sharing services in public procurement	2
	Build cooperation and networking with other actors (e.g. establishing an online sharehub)	1
	Provide help in impact assessment	1
	Provide financial support (e.g. subsidies, loans schemes or tax exemptions)	2
	Provide help with marketing and communication (e.g. municipal-level labelling of "sharing" organisations)	2
	Revise municipal standards, regulations and bylaws to support the sharing actors	1

9	How willing would your organisation be to support the Sharing City Umeå initiative?	#
	We would willingly collaborate with the municipality's initiatives	4
	We would be happy to share the necessary data and information	1
10	To what degree are Umeå consumers aware of sharing services in your view? (1 Highly Unaware - 5 Highly Aware)	#
	1	1
	2	2
	3	2
11	How do you create trust between your users/participants and your organisation?	#
	Personal contact between users and your organisation	3
	Linking to social networks/media	2
	Transparency in social and environmental issues	2
	Third party reputation system	1
	Own reputation system	1
	Offering insurance to reduce risk/trust issue	1
	BankID	1
	Ensuring smooth and reliable delivery of our services	1
12	What would you say is the short-term vision or goal for your organisation within the sharing economy?	
	+30 % growth month to month in transactions	
	Få tillräckligt många användare så tjänsten blir lönsam för bolaget.	
	Spread the word about Co-Grow so that all 800 users can become co-growers and share garden. Develop the platform to include commercial growers.	
	Establish pickup/drop off points. Some kind of a shelving system that can be maintained by volunteers so people can just drop off stuff they don't need, particularly in student dense areas like ALidhem.	
	We want to be able to start a community bicycle workshop in a neighbourhood, where we can finally have a place of our own, to have activities regularly and start running courses in repairing and building bikes.	
13	What would you say is the long-term vision or goal for your organisation within the sharing economy?	

	<p>Easier to rent than to buy the things you need</p> <p>En ledande aktör inom kombinerad mobilitet. Och därmed Hjälpa så många som möjligt att resa hållbart, dvs mindre klimatpåverkan, billigare och enklare.</p> <p>Everyone can grow food and reclaim the vegetable garden that was common in the past. Co-Growing will be the primary way for landowners to provide their cultivation area, and for growers to become commercial.</p> <p>Develop a self-sustaining system with minimal intervention to have food swap as prevalent as other types of loppis.</p> <p>In short, we want to empower people in their everyday lives; to know how their bicycles work and how they can manage them themselves. It is about giving people control over their situation. This includes raising confidence, that everyone has the strength and is able to learn and do things themselves. It also is about giving the public open access to the shared banks of knowledge and tools that our organisation wants to create. We want multiple community workshops to open around the city and that they become social meeting places in their neighbourhoods where people can come together, share knowledge and skills, help each other, and build good and strong relations with their neighbours.</p>	
14	<p>Please share any other information that you feel was not covered in this questionnaire or that you want to elaborate further.</p>	
	<p>For us to be able to prioritize work with Umeå municipality we need to think it will help our short-term goal and being an agile project.</p> <p>Vi har under 4-års tid efterfrågat ett samarbete med kommunen. Vi har önskat att kommunen skulle vara utvecklingskund med möjlighet att påverka utvecklandet av tjänsten för kombinerad mobilitet. Och att kommunen samtidigt skulle använt/testat tjänsten för att dela de transportresurser kommunen har tillgång till (organisationens bilar, sunfleetbilar, cyklar, elcyklar, lådcyklar, kollektivtrafik)</p> <p>This is entirely a volunteer-run project and a certain amount of funding could help it go further since it requires man hours to execute the actual events and keep the social platform alive.</p> <p>Some of the questions presuppose that we are offering services or goods. But we would argue that such a view misses some of the most important aspects of sharing; that we are doing things together. We are involving people as participants, not as consumers. We are not simply offering a service or good, but in common both creating and using it. We want to stress that sharing is not a new business model. The aim of trying to make sharing profitable actually often destroys the social aspects of it. Money obstructs the free and voluntary involvement in creating something together with others. We wish that attention is given to the non-profit actors.</p>	