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Sharing City Stockholm – Developing a citizen engagement laboratory for a local climate goal and the sharing economy

Charlie Gullström, Olle Bergman and Kes McCormick



Background

The uniqueness of the Stockholm test-bed is based on its close collaboration with a citizen initiative called Hammarby Sjöstad 2.0 around the mission to create a climate-neutral city district by 2027. The founder of Hammarby Sjöstad 2.0 is ElectriCITY, a (civic society NGO and) membership association which operates a number of energy initiatives in the area since 2012, primarily by targeting the need for knowledge-sharing between housing association boards. Over 30 housing associations are currently engaged in projects relating to optimized energy systems; joint procurement; a shared solar-cell park; and real estate hub for sharing data and preparations to form positive energy districts are ongoing. Since its start in 2017, Sharing City Stockholm has fuelled Hammarby Sjöstad 2.0 as a 'citizen engagement lab' by more directly involving households in reaching the climate goal. A workshop series 'Klimatspanarna' has been launched, with topics of interest to families with small children; and various projects are ongoing to promote sharing among neighbours, as an alternative to consumption, by experimenting with neighbourhood platforms and working with focus groups in selected residential blocks.

Hammarby Sjöstad is a district in the centre of Stockholm which was planned as an eco-district in the 1990s and it has received international attention for its ambitious goals and activities. It currently has 15,000 inhabitants and construction is still ongoing. While the city of Stockholm at large has set its climate targets by 2040, Hammarby Sjöstad 2.0 and Sharing City Stockholm have formulated a local climate goal for 2030. This has been the starting point for the working methods in the test-bed, which includes negotiated simulation with

residents and stakeholders in workshops and the application of future-oriented scenarios, for example using mockups for a neighbourhood platform using so-called digital twin of a local context. Hammarby Sjöstad is the special focus area for the test-bed in Stockholm and overall a flagship development project for the City of Stockholm with ambitious visions and goals for sustainable buildings, transport, and lifestyles.

Solution

The test-bed for Sharing City Stockholm is Hammarby Sjöstad 2.0 where future-oriented scenarios for a climate-neutral city district are run in parallel with some 30 projects to optimize energy systems, promote knowledge-sharing, sustainability and digitalisation. With the help of for example digital twin technology, opportunities are created for sharing among neighbours in the residential areas.

Charlie Gullström – architect, researcher and the project manager for Sharing City Stockholm at RISE Research Institutes of Sweden – uses a telling quote: *"Our research is about bringing people together, we believe that co-creation is the key to reach the local climate goal. We want to make it easy for neighbours to use shared resources more and we try to introduce circular economy thinking through workshops and initiatives."* One example, Lånelådan, a street-box for sharing that is located in the public space between two residential blocks (www.laneladan.se). Overall, our work qualifies as action research and co-creation processes to develop trust and social cohesion, health and wellbeing.

An important part of the Sharing Cities Sweden program is to develop a framework for a digital infrastructure for sharing. The Stockholm test-bed has chosen to use digital twins and virtual spaces as a means to create a neighbourhood platform for residents. The idea is to promote sharing and sustainable patterns of behavior by visualizing real-time sensor data and other relevant information for residents, about the physical surroundings. Charlie explains: *"We want to make it really easy for people to move between two worlds, almost as if there were no boundaries. I think every residential block should have a shared virtual space, to supplement the physical environment with useful information or to facilitate interaction with neighbours. From our research so far, we have found that residents have little engagement with one another, in spite of the many shared spaces and resources at hand. Independence and anonymity have become strong features of our current society, an effect of the welfare society that perhaps is not altogether positive. In Sweden, like elsewhere, loneliness is becoming a serious illness and it is important to understand if and how sharing and digitalization can strengthen social and spatial connectedness, and perhaps benefit health and wellbeing."*

Besides ElectriCITY and RISE, the partners of Sharing City Stockholm are the City of Stockholm; KTH Royal Institute of Technology; Ericsson; Skanska; Evothings; Metasolutions; and Kami Development.

- *"The difference with the other test-beds in Sharing Cities Sweden is that this is not primarily driven by the municipality, but rather from a citizen initiative"*, Charlie Gullström explains. *"Our project develops in collaboration with citizens to reach a local climate target."*

ElectriCITY is an economic association in Swedish terms, which equals an NGO. The

organisation was founded in 2012 and aims to make Hammarby Sjöstad one of the most climate-smart neighborhoods in Sweden. The concept Hammarby Sjöstad 2.0 was created as a framework for the currently ongoing 30 projects and collaborations.

- *"Besides the many energy initiatives we are hosting, we hope to develop an interactive neighborhood platform with the purpose, to help residents make climate-smart choices in their everyday lives"*, says Jörgen Löf, the CEO of ElectriCITY. He is referring to 'Lånelådan', one of the projects that Sharing City Stockholm has developed to promote sharing among neighbours.

Lånelådan is best described as a street-box for sharing, that has been in place in the public space between the two housing associations Knallen and Holmen, comprising 320 flats, and which is accompanied by a website where all the items that residents potentially might want to share are presented. For the actual transaction and monitoring of the digital lock in Lånelådan, residents are guided to an app which has been developed in collaboration with Husqvarna Tools for Urban Sharing, a new concept that partly derives from collaboration with Sharing City Stockholm.

Lånelådan is one of the features that will be brought into the neighbourhood platform to support social and spatial connectedness among neighbours. It might, for example, also be useful to have an online booking system that visualizes available resources and common spaces, possibly in the neighbourhood as a whole.

- *"There is a great potential to use spaces more, for example office spaces and spaces in schools and other public buildings are used as little as 10%. Just as we address the concept of food waste, we need to address space waste"*, says Charlie Gullström.

Some other examples might be to inform about the air quality in the neighborhood, initiating joint purchases and coordinating transports. For example, air quality sensors have been placed around Hammarby Sjöstad, and in view of increased traffic in the area, residents may want to be informed.

- *"Buildings today are all to some extent "intelligent". But they are only really "smart" if those who use the house are in the loop. Returning information directly to the residents about how shared resources and premises are used is therefore a key factor in our project."*

Many people seem to think being resource-efficient, sorting waste or sharing instead of owning a car does not make any real change.

- *"But we believe that better visualizing how individual measures have an impact on society as a whole can make a difference. For example, based on local sensor data in the neighbourhood, we can show the concrete impact for the district."* Charlie Gullström argues that it will matter to residents if the potential impact can be visualized.

- *"If our digital twin can visualize the impact of one, or 15 000 households, who decide to share rather than consume, or to eat plant-based rather than meat-based, then we can make a difference."*

The big challenge that Sharing City Stockholm is facing, is to transform all the former parking garages in the area for urban agriculture. The argument is that they are no longer needed for parking as a result of increase electrification and the abundance of car-pools in the area (not

least a result from the many installations of electrical chargers that ElectriCITY has facilitated through knowledge-sharing: how to apply for funding has been one of their benchmarks since 2018, resulting in placing Hammarby Sjöstad at the top of the mark in terms of number of electrical car chargers in the Stockholm area.

"In a well-planned urban district, we should not need cars at all", says Charlie Gullström.

Launching the urban agriculture project is a natural way to involve residents and the next step towards a circular economy. Charlie Gullström explains: *"A key for the circular economy is to create a local market and a local production, in order to avoid transports of goods. For this reason we are collaborating with Swegreen, a Stockholm SME on hydroponic agriculture, to establish local production in Hammarby Sjöstad. We will promote 'Sjöstadssalladen' a mix of greens with no transport!"*

Jörgen Lööf tells us of another ongoing collaboration with the beer factory Carnegie to use the surplus heat from their production in a central area by the quay to establish an innovative on-water greenhouse! *"We will have tropical fruits served in the local Carnegie restaurant, no transport what so ever!"*, he says.

The project group provides a framework for an open digital infrastructure that supports scalability. This creates a non-proprietary platform that gives the residents access to the data they generate on common premises. To this platform, both commercial and non-commercial sharing initiatives can be linked. Charlie Gullström compares the process of how a traditional library is designed to give citizens access to books. Today we need to complement the physical infrastructure with digital support - and that in a way allows us to continue to borrow both from each other and from other actors.

- *"Look at how modern libraries today develop into meeting places for sharing - this applies to knowledge as well as tools and services that are delivered by different actors. Even spaces can be shared in libraries, a great example is the Helsinki City Library which promotes sharing of both spaces and resources, such as sowing machines and 3D-printers."*

Twenty years ago, Hammarby Sjöstad was a predominantly environmental project in which Stockholm Municipality, construction companies and architects worked together for sustainable development as has been documented and spread worldwide. A lot of innovative approaches were taken, for example in terms of so-called "bokaler", meaning premises for small businesses and associations on the street level.

- *"An architect who was instrumental in this was Mats Egelius (White Arkitekter, www.whitearkitekter.com), who had foresight and one thing he did was planned agricultural lots in a residential neighborhood, far ahead of the urban agriculture wave that we now see in cities around the world. Hammarby Sjöstad also has an unusual lot of parks and public space."*

Something that the project group in Sharing City Stockholm is exploring together with ElectriCITY is the social community: how to maintain and develop trust between neighbours? Shared virtual spaces are not only a logistical and practical tool for the sharing economy, but also something that can change attitudes. Just like a physical laundry room or meeting room or local park, a virtual environment can become an arena for interaction that brings us closer.

- *“Right now we are studying seven streets and working directly with those who live there. We have been conducting baseline surveys for about a year now to get a picture of how and why they thrive in this area.”*

Lessons

1. Promote cooperation between citizens and local actors

Use sharing and digitalisation to leverage cooperation between citizens and local actors to encourage a discussion on open data and to make platforms available so that the “digital twin” of the city becomes a safe, public and open place for everyone to exchange data as well as experiences.

2. Experiment with local initiatives

Create small pilots and living labs where startups are linked to local initiatives for a circular and sharing economy, such as urban farming and cultivation, food waste or social innovation, by putting pressure on the suppliers to test new services.

3. Build trust with citizens

Maintaining and developing trust between neighbours is critical to ensure a sharing economy is aligned with the Sustainable Development Goals and ambitions to develop circular business models for health and wellbeing in urban environments.

Resources

For more information on Sharing City Stockholm visit:

<https://www.sharingcities.se/stockholmtestbed>

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