ETHNOGRAPHIC

DESIGN

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METHODOLOGY

CATALOGUE

LIVING LABS FOR

FUTURE URBAN

MOBILITY

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The insights presented in this catalogue are derived from research undertaken within the AHAII project. AHAII is part of Drive Sweden's strategic project portfolio, funded through VINNOVA between 2019-2022. Drive Sweden is one of the Swedish government's 17 Strategic Innovation Programs (SIPs). Drive Sweden consists of partners from academia, industry and society and together we address the challenges connected to the next generation mobility system for people and goods. The SIPs are funded by the Swedish Innovation Agency Vinnova, the Swedish Research Council Formas and the Swedish Energy Agency. Drive Sweden is hosted by Lindholmen Science Park AB. AHAII benefits from the active participation of several strategic partners: Göteborg City, Halmstad University, Helsingborg City, Skånetrafiken, Volvo Cars Corporation, Västtrafik.

The insights were produced through design ethnographic studies in two areas in Sweden within the city of Gothenburg and the City of Helsingborg, and people who have been part of the study are not mentioned with their real names. The studies are done in close collaboration with local stakeholders and projects: Helsingborgshem, Project DrottningH, IdéA Drottninghög, City Expo H22 and Bergum Gunnilse Utveckling (BGU).

Please feel free to use the catalogue in meetings or workshops in your organisations. If you refer to the catalogue, please add our team and project AHAII as a reference The research outputs that the catalogue are based on have been published in a range of scientifc journals and conference proceedings, for a full list publication list please contact Vaike Fors (vaike.fors@hh.se) or visit the project website. All workshop materials can be retrieved on the project website, together with information about costs and possibilities for inviting our team to organise in-house workshops and training in the AHA-methodology.

Any questions regarding this can be answered by project leader Vaike Fors at Halmstad University.

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INTRODUCTION

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This catalogue leads you on a discovery through the AHA II fieldwork, analysis and co-design of future mobilities - from a human approach. It offers new understandings and perspectives based on design ethnographic explorations in two suburban areas, Drottninghög and Bergum-Gunnilse, in South-West Sweden, and collaborations across academic, urban and industry stakeholders, to re-frame and co-deign human future mobility. Key in the AHA II project has been to spend time in areas where people live who are not the conventional research participants in mobility user studies. Another key is that AHA II project has taken transdisciplinarity seriously, i. e implementing a methodological approach with high ambitions of multi-stakeholder co-creation while at the same time anchoring future mobility in local knowledge and values.

The AHA catalogue presents real-life narratives, experiences, insights, and re-framings of everyday and future mobilities. It is a resource created to inspire and support exploration, development and prototyping in the AHAII project. The catalogue offers stakeholders in future mobilities an opportunity to explore everyday life mobility experiences, concerns and imaginations. The catelogue has been a living document in the AHA project,and used as a shared resource and collaborative tool. It will continue living on as a public resource, for researchers, stakeholders, initiatives and publics addressing innovation for socially sustainable and shared mobility futures.

Sections and materials of the catalogue can be used for different purposes and contexts; to gain new understandings or used as materials for discussions, co-design workshops, etc. Involving citizens and stakeholders.

Section A gives an overview of the project and its aims, goals and tailored methodological approach and the main delivery from the project; the AHA II methodological principals and components.

Section B provides stories and insights of everyday mobility from citizens in Drottninghög and Bergum-Gunnilse who participated in the research presented in themes.

Section C provides comparisons of the insights from both communities and our reframings of what the insights mean for re-thinking the first and last mile challenge, and mobility hubs.

Section D is a collection of working materials, ideas and directions for co-design, prototyping and development of future and shared mobility solutions.

Section E presents how the AHA II co-created city guidelines for planning for future mobility, and the results of this approach.

Section F concludes general findings of human-centred future mobility and brings those together in the development of the AHA II design concept; community value based traveling as well as providing directions for future work ahead.

Section G gives an overview of insights om human-centered future mobility that has been developed through the life of the AHAII project.

We hope the catalogue will inspire and support human approaches to future mobility in diverse local and global contexts.

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A
INTRODUCTION

AHA - A Human Approach

Focusing on the everyday lives, experiences, challenges and imaginations of people and communities, we draw in human and social perspectives to develop sustainable future mobilities.

AHA takes a human-centered approach to future mobility and transportation. We draw on the human and social sciences, in particular anthropology, to develop user-centered design and technology innovation.

This entails a critical approach to dominant narratives around future mobility systems: We aim to move away from top-down, standard, on-size-fits-all solutions to products and services, to mobility systems that attend to the needs revealed by our explorations of people's everyday lives, experiences, anxieties and aspirations.

- We aim to offer solutions that are suitable for the real lives of socially, culturally and economically diverse groups of people, with varying degrees of interest in and access to digital services, solutions that are suited to their needs and values, and that go beyond the target users of digital personalisation based on predictive data analytics.
- Contextualising citizen involvement, our design ethnographic living labs support the focus on bottom-up exploration and engagements, combined with close stakeholder collaborations.

Our work challenges common assumptions of 'what people want' such as efficiency, cost, convenience, seamlessness, and easy access, through a focus on the complexities, values and contingencies of everyday life. Principles embedded in our approach include diversity, equality, agency, sustainability, sharing, and caring.

Combining human approaches and novel research methods, AHA is provides new and sustainable perspectives that reframe dominant narratives on technology innovation and future mobilities.

AHA CHALLENGES - First/Last Mile

The AHA II project addresses the 'first and last mile challenges' and 'Mobility Hubs'. These are challenges that have not yet been addressed through human-centred approaches. The project will explore and reframe these notions by addressing what they may mean for people in their everyday environments.

The 'first mile challenge' refers to access and service quality at the outset of users' journeys. It refers to transport options used during the 'last mile' of urban commuting and is connected to debates on automated services and emerging technologies.

Current debates focus on:

- The possibilities of motorized, autonomous and networked vehicles, filling the gaps in transportation systems and first and last mile travel.
- Technology-driven solutions and mobility as a service (MaaS-services).
- Big cities and demographics that can access and use micro-mobilty services.
- Principles of personalisation for the active tech-savvy user, shaped to suit particular young and masculine personas.

In addition, the AHA approach will:

- Focus on the experiences of people, families and communities, that include micro-mobility practices, but not always connectivity and data mobilities.
- Explore and account for human experience, values and priorities.
- Acknowledge that travellers come from diverse social groups and experience the first and last miles of their travel differently and that their practices can vary widely.
- Create locally grounded, in-depth understandings of travellers' practices, experiences and (shared) representations.
- Re-frame the 'first/last mile challenge' from a human-centred perspective.

AHA CHALLENGES - Mobility Hubs

The AHA project demonstrates and innovates ways to involve communities in the design of urban mobility solutions in relation to first/last mile transport of people and goods, by producing human-centred ideas, concepts and directions for 'mobility hubs' and MaaS-services.

Picture attribution: News Oresund, CC BY 2.0 <https://creativecommons.org/licenses/by/2.0>, via Wikimedia Commons

Mobility Hubs refer to physical spaces that acts as centres of multi-modal transportation often connected to digital app-based Mobility – as – a – Service concepts. The image here shows how the Central station in Helsingborg – Knutpunkten – will look like in the future, as it becomes a 'hub' that connects trains, buses, ferries, taxis and micro-mobility services.

Current debates conceptualise Mobility Hubs as centers that:

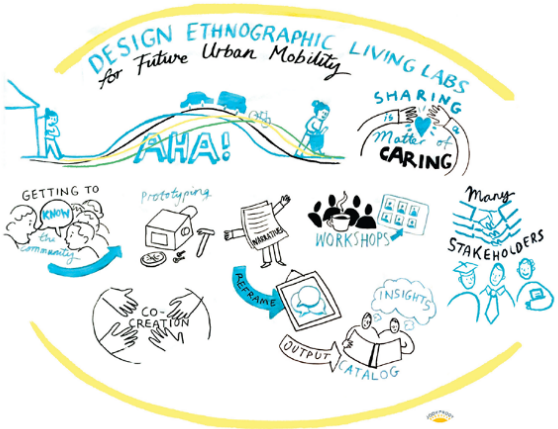
- Link transit, active transportation, and car commutes in convenient, safe and accessible ways.
- Increase the appeal of using shared modes.
- Increase the ability of residents to not own a personal car.
- Provide a gathering space for the neighbourhood.

In addition, the AHA approach will:

- Develop new ways to conceptualise future Mobility Hubs together with citizens and stakeholders from Gothenburg and Helsingborg.
- Produce human-centred knowledge about challenges and opportunities, urban planning principles/city design and future scenarios for these.
- Develop ways of prototyping MaaS digital service concepts that involve collaboratively enquiring into and co-designing possible futures through engaging stakeholders and citizens into the process.

Design ethnography and Urban Living Labs

Research methods and design for A Human Approach.



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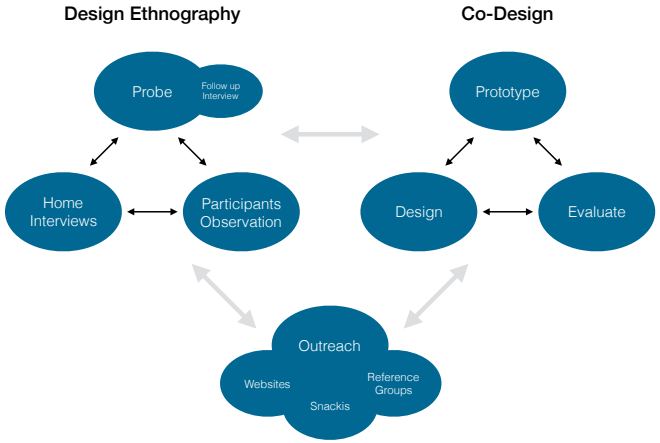


Design ethnography brings together the theory, methods and approaches of ethnography and design resarch to create a collaborative approach that involves both citizens and stakeholders.

It involves using ethnographic methods, interviewing people and following them in their daily lives and communities, sharing their experiences in the present and their imagined futures. It also means working with participants and stakeholders in workshops, to co-create knowledge, imagine future technologies and codesign prototypes and services.

AHA has developed a design ethnographic Urban Living Lab approach to exploring future mobilities. The Urban Living Lab innovation milieu can be seen as a network of supporting activities in digital innovation. The approach brings together a collection of methods and techniques to support human-centered activities and perspectives to innovation situated in a real world context.

The Urban Living Lab approach is closely related to human-centred and co-design approaches to cross-sector development, integrating research and innovation processes in real life communities and settings.

AHA - DESIGN ETHNOGRAPHIC PRINCIPLES

Tailoring approaches

A design ethnographic living lab entails a continuous tailoring of methods and approaches that is attentative to what is possible, needed and aligned to the specifics of the involved communities and stakeholder consortiums. In our book Design Ethnography (published by Routledge in 2022) we described that 'Design Ethnography involves learning and knowing with people as participants or interdisciplinary collaborators, with organisations and with society. It is thus a pedagogical practice. Not in the sense that it teaches, but in that it can be understood theoretically and implemented practically as involving incremental modes of knowing and learning that accumulate through processes of engagement, collaboration and intervention. This involves understanding how both participants in research and researchers learn as we weave our ways through everyday worlds, experimental events and imagined futures.' (page 8).

Anchoring voices

The AHA II process gives voice to those most concerned by the questions that emerge locally around future mobility. Our insights and reframings are not rooted in top-down technological concepts or distant behavioural observations, but in the collaborative establishment of the socio-technical conditions for change. Our participatory approach acknowledges the role of diverse actors and local environments. Engagement is key to this practice of anchoring and the tools we develop grounded in our participatory, iterative design process.

Reframing perspectives

The AHA approach invites all involved to think differently and critically about the most prominent paradigms around future mobility with the help of insights that are anchored in local realities. We put the concepts of mobility hubs, the first and last mile challenge, shared (automated) mobilities, to the test in our Design Ethnography. Both present mobility practices and the collectively speculated mobility futures contest pervasive principles of mobility innovation: for example rather than filling the first and the last mile with automated technologies, there is a need to support existing community sharing; rather than personalising services, we should tailor them to more complex local situations; and rather than thinking primarily of how to make mobility practices more cost and time efficient there are reasons to look closer at what community values are enmeshed in everyday mobility practices.

Scaling human approaches

The reframings, methodologies and techniques we develop in AHA II are created to be useful and to produce new results in other projects and contexts. That does not mean that we e aiming for universally applicable solutions or that the findings from AHA are directly transferrable – the goal is to build connections with other sites where future mobility is co-designed. The AHA methodology components and reframings will support, drive and enrich sustainable, participatory and multistakeholder innovation processes that start from locally situated values, practices and relationships rather than transposing preestablished technological fixes.

DESIGN ETHNOGRAPHIC COMPONENTS

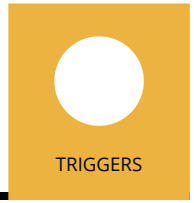
The resulting AHA II framework has three key methodological components. We built relations with stakeholder and create engagement with participants through design ethnographic explorations (interviews, drive-alongs, co-creative workshops). Throughout these activities, we used a series of triggers to prompt discussions and ideas that we worked into tools, which we could then use to further iterate on our results and facilitate workshops inside and outside of the project. We have described these components below, and on next page there is an overview of the workflow how it developed through the project.

Design Ethnographic **Engagements**

- Ethnographic explorations
- Co-creative workshops
- Structuring relations

Several different modes of engagement were part of the AHA II process. We conducted online interviews with participants from each of the areas and followed participants' lead driving along through the areas in filmed and recorded two-car convoys. Local residents and stakeholders engaged through Future Workshops, Shared Mobility workshops and Speculative Workshops, as well as regular Living Meet-Ups. Local neighbourhood organisations, schools, administrations and friendship networks were involved in building relations aournd the project.

Design Ethnographic **Triggers**



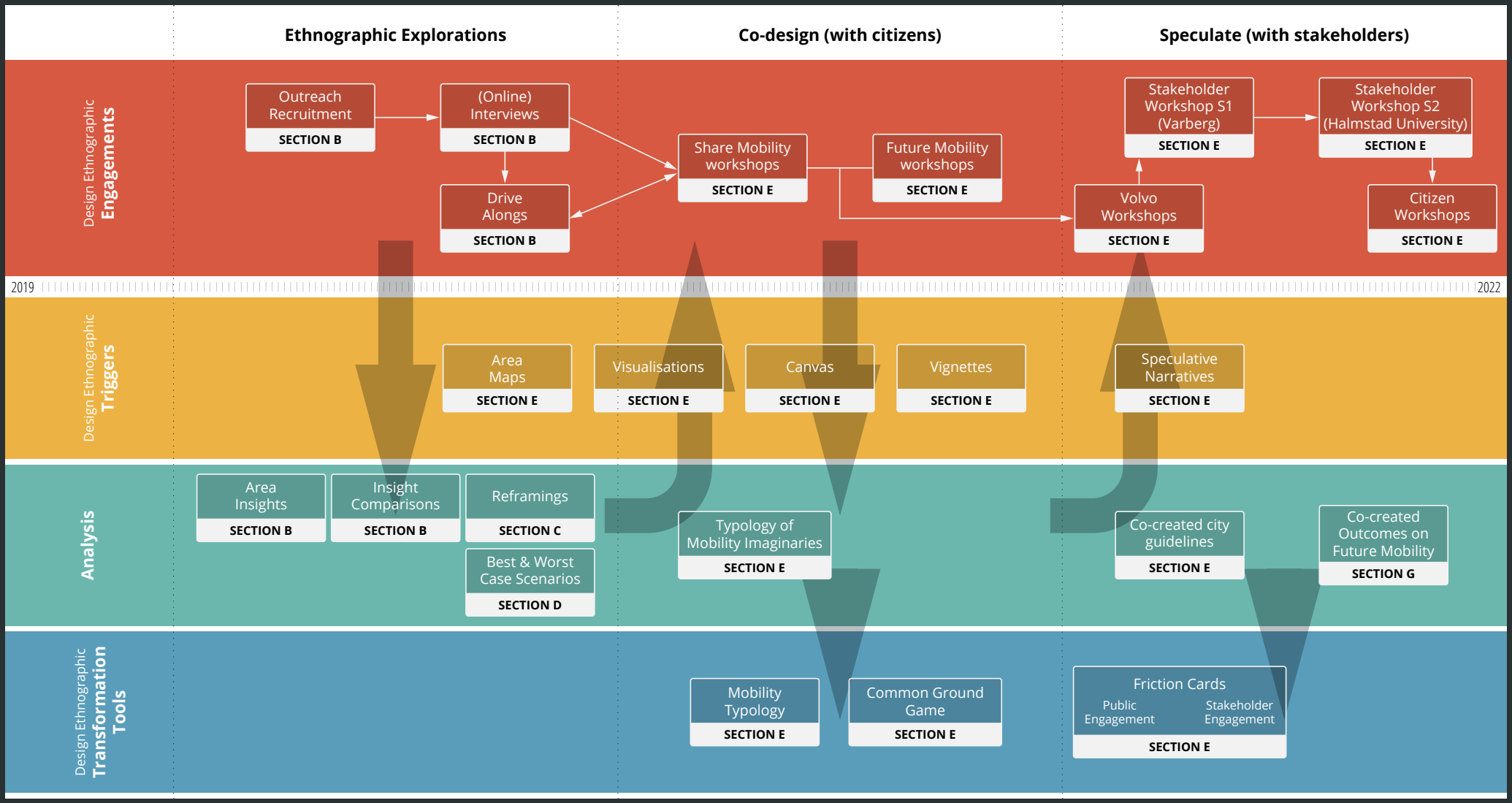
- Canvases, Vignettes
- Local maps, visualisations
- Speculative Narratives, films

Throughout these activities we used different triggers to prompt or ground discussions. These included interactive maps, where workshop and interview participants could share visions of their area, identify important present and future places and co-design ways to inhabit them. We used visuals of (speculative) AVs to discuss how and if such systems could be part of common mobilities. Our video-recorded two-car drive-along set-ups encouraged participants to share ideas and incorporated knowledge about their environment. We also used narratives vignettes and canvases to stimulate and structure future scenarios and we iterated on the resulting speculative narratives through films and visuals in other workshops.

Design Ethnographic **Transformation Tools**

- Mobility Imaginaries/Desires
- Friction Cards
- The Common Ground Game

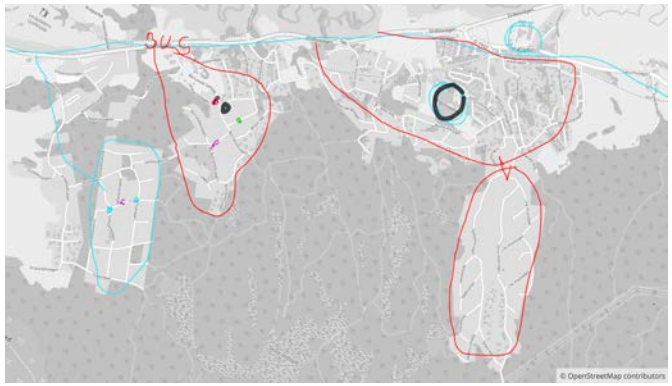
Based on this Design Ethnographic process, we developed a set of innovate interventional tools to provoke and facilitate co-creative, speculative processes. Built on the emerging themes, questions and narratives from our encounters, all of these tools served to challenge and iterate on scenarios that were co-designed by participants and stakeholders in the project. Presenting as table-top games and graphic storytelling vignettes, these tools were designed to be used and adapted beyond the project in encounters around future mobility.



B

STORIES & INSIGHTS FROM DROTTNINGHÖG AND BERGUM GUNNILSE

Research methods and co-design approach
Ethnographic Explorations



The research approach for AHA has included a number of innovative methods, including newly adapted (design) ethnographic research methods. During the life of the project we developed relations to participants who lived and worked in the neibourhoods through ethnographic explorations, that included:

- **remote interviews** with residents from Drottninghög and Bergum-Gunnilse. These created insights into participants' everyday experiences and were complemented by photo explorations of places they pointed out.
- **"drive-alongs"** in separate following cars, where participants lead us through meaningful or problematic spaces in their area from their car.
- **interactive map activities**, where participants put their experiences, imaginations and propositions around mobility into a situated local context, providing insights to specific challenges regarding everyday mobility, as well as possible future opportunities.
- **diary methods** where participants wrote and photographed their everyday transport.

Key themes guiding our research

Six key themes have guided our research and run through the stories and insights in the catalogue

Routines

Routines of mobility are already practiced in local spaces in Drottninghög and Bergum-Gunnilse. These existing practices shape how people adapt and perceive new solutions. How does mobility already work in these areas? What are the possible challenge?

Sharing

Sharing and coordinating, rather than owning, are central themes for exploring future mobilities. They are performed in existing networks of caring and mutual aid. Which objects, travels and tasks do people already share and under which conditions? Which tools do they use to do so?

Trust

People need to trust not just new mobility solutions to use them, but also information, automated systems and each other. When do people feel they can trust other people, organisations or digital devices? When do they share, collaborate or relinquish control? Which spaces are trustworthy?

Values

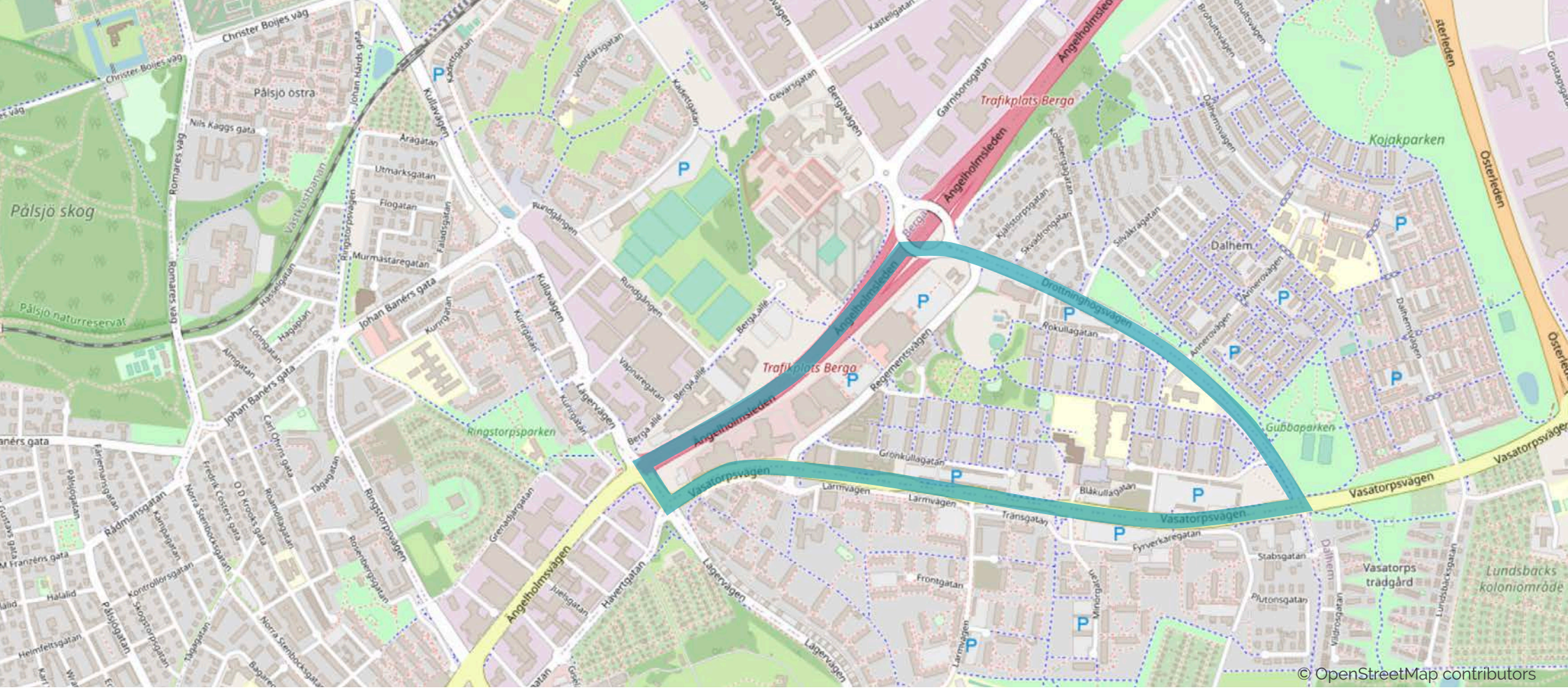
Mobility choices and practices are inseparable from value systems, meanings and representations. What is the symbolic value of things and actions? What values guide people's everyday practices? What is important for people and what can't they go without?

Learning

Change involves learning and people continually learn as their lives evolve. How do people learn new mobility strategies from each other? How do they learn to share? What are they curious about? How do they learn in particular spaces and with objects and technologies?

Imagination

Finding out how people imagine future mobility is a key goal of AHAII. Based on their experiences, people share desires, projects, ideals about the future they imagine for their area and their mobility.



DROTTNINGHÖG

The area was built in 1967. The area has a centre with schools, library, medical centre and smaller shops and cafés. The area also includes large food stores. It takes 15 minutes to take the bus to the city centre and the area is undergoing a major transformation to densify and create both demographic and physical variation.

Drottninghög

The area Drottninghög was built in 1967 as part of the Million Programme that aimed to provide Sweden with a million homes in ten years. Because the homes were to be built in a short time, typical million programme areas became monotonous, filled with identical apartment complexes. The area was built according to principles of '*produktionsanpassad projektering*' that prioritized efficient and rational construction over BE architectural vision. Today it has 3000 residents with a high proportion of families with children and people with migratory backgrounds. The area is targeted for large scale transformation through social engagement and long-term urban planning (vision 2035). The area is well connected with Helsingborg city centre through public transport.

The participants in the study are from all ages (from teenagers to retired people), and most of them live in the area (a smaller number of the participants work in Drottninghög, but live in other areas).

The local mobility hub

Several places already function as hubs and the entire area could be considered as one hub.

"Considering that my work is a five minute walk from their school so - and I work at a library that is an open meeting place, it is usually not a problem because they can always come to me in the worst case and wait just like everyone else, children coming to the library. And if that happens, they have their homework with them so there has never been a problem with it."

Generally, people used their cars or enjoyed their short walks to the centre of Drottninghög or to the bus stop. Participants described their lives as being so local that it seemed that it is Drottninghög itself that is already a hub.

There are already places people use as local 'hubs', and for specific purposes. For example, one participant uses the library as the place where she works and where her kids wait for her to drive them home. There are local associations, the Growers Association and shops, which are places that people are mobile to. There is a Café Välkommen project which was successful as part of a social integration initiative.

Ranges of mobilities – the local area as a social space

The area works well for many people who use it for socialising, shopping, taking the kids out to play or walking the dog. It centralises a range of mobilities and concentrates a lot of travel destinations.

"I like the area very much and yes, Helsingborgshem has great staff."

"We have Maxi, Lidl, Coop and M.A.T. ... so we have four grocery stores around Drottninghög. So it's perfect".

An older woman participant has lived in Drottninghög for over 30 years, on three different streets. She is disabled, due to a spinal cord injury, and needs to use a wheel chair or an electric mobility device (permobile) to get about outdoors.

Her daily routine is local, once she wakes up she takes her dog out for walks, riding the permobile herself for short rounds in the local area, either to the shopping centre or another green area. She usually takes the dog out twice a day, in the morning and evening, and because it was a hot day, on the day of the interview she said she'd taken him out in the middle of the day, too. The green areas in Drottninghög are important to her.

Her first mile is also a social area - when she is out she often stops and chats with neighbours and people she knows, and also has many neighbours drop in to check on her at home. She looks at the advertisements for discounts and offers and selects her shops accordingly. She can also go all the way to the city on the bike path on her permobile if she wants.

The meaning of centres

For some people Drottninghög is the centre. Rather than a suburb more or less connected to the city centre, it is a centre to surrounding areas and the centre of daily life for many residents.

A man participant who is a long-term resident in the area, and who had lived in Drottninghög itself for 3-4 years described it as the centre of three connected neighbourhoods.

In his vision, Drottninghög is where the shops for groceries, cigarettes, barbers etc are located, and the supermarkets are close to the motorway so people also stop off to use them.

The centre also offers some activities for young people and older people meaning that they can stay in the neighbourhood. While some youth might hang out in the city, some do so in Drottninghög, where there is a swimming pool which has been refurbished with a beach theme and a youth centre which holds activities.

There is also a greenhouse area for older people which is used to grow vegetables.

First and last mile as local social spaces

People enjoy and use the first and last mile – they use it. Is there really a first and last mile challenge in Drottninghög?

"I work at Drottninghög's library so it is only walking distance, about 2-3 minutes depending. But sometimes it can take a little longer before I get to work because from home to work I meet a lot of people who can stop me on the road and then we start talking about one thing and the other. And it's just fun."

Local ways of knowing are fundamental to how people move in and make the most of the areas near to their homes. For many participants, the first mile was usually also the last mile. When they went out locally, they did not need to connect to other public transport systems, or to necessarily use their cars to cover this area. The local, although some participants noted the 'bad' reputation of Drottninghög for drugs and crime, was generally a pleasure to them, a social space, a route for walking, shopping and getting out of the house.

The key insight is that we should not assume that the local is necessarily an empty or problematic part of a journey, whether or not part of a commute, rather that it might be laden with welcome memories, feelings, social encounters, objects and experiences.

The first mile also might be part of someone's social identity – where a car means a status then the use of the car to drive through the parts of the locality that take you out on your commute might be performative as much as convenient. Replacing a walk or a ride in a status symnol car with an electric bike as part of a shared mobility scheme might not have the same social role.

The point here is that top-down mobilities solutions might not have anything to do with local 'problems'.

The value embedded in the first/last mile

Using public transport helps people to feel part of society and walking the first/last mile can be valuable.

"Because it's more fun so when you walk you can get the opportunity to look a little more nature and take a little more air ... But if you cycle, you have to go there in two or three minutes and you are back two or three minutes later."

A woman participant has lived in Drottninghög for 12 years and has 3 kids – 9, 7 & 3 years. She works in preschools in Helsingborg and has one year left to finish her qualification as a preschool teacher at Malmö University. She and her husband are both refugees and have no other family in Sweden. They've lived in 2 places in Drottninghög. She does not have a car or bike so she uses public transport and/or walking. It had not occurred to her to get a bike, and anyway she tells us she likes walking. She does big shops and gets deliveries every one or two months as this is cost effective, but she also goes to the shops even several times a day for the things that she needs on a daily basis.

She does not have a driving license and feels that having a car would make her lazy; she likes to use public transport and it helps her to feel part of society. She told us that this was also something she felt when she had more recently arrived in Sweden. She also feels she needs to walk every day because she has diabetes, and needs to exercise. During the summer when she is on holiday with the children she also uses the local a lot – they go to local parks.

Living locally

Elderly people enjoy the local area and like to move around there, but at night fear some of the resident groups.

"What's great about Drottninghög here is business everywhere. So I have barely 1 minute to one store to Coop and then one and a half minutes to maxi, and maybe 2 minutes to Lidl. So I - and have them open from 07 to 22 ... I actually do not even have to go down to town, if I do not want. I have everything about the knot as they say."

One woman participant was retired and nearly 75 years old. At this age she will get a free bus pass. She will then use her car less and go to Helsingborg on the bus more often. She uses her car to help out family – collecting her grandchildren from school/day care and such like when needed. She also lives locally in Drottninghög, and uses the library (she used to be a librarian)and the church, she goes to the park with her friend, and goes shopping in the local shops. During the pandemic her son helped her with some of these local tasks.

She is concerned about going out in Drottninghög at night, as there are groups of youth in the streets, and also there was a drug dealer living in one of the apartments near her in the past which worried her.

Car sharing in family networks

People have doubts about car sharing or carpooling services, and would not trust others, but in fact they already share and provide services for others with transport and vehicles.

Photo from research participant diary

Participants of different ages described to us how they already shared or pooled cars and provided mobility services in their families.

A older woman participant who was disabled, used a special service provided for her to take some trips to other places, but she also travelled on public transport when invited by her neighbours and friends.

A mother of school age children provided transport services for her children, taking them to school with her every day when she drove into work. She and her husband also provided transport services by driving each when the weather or other circumstances made this necessary.

An older participant provided transport services for her grandchildren, which she combined with childcare for them. Her son provided services for her, by shopping for her during COVID.

One younger man participant had access to using five different cars that he could borrow. He accessed this through his parent network, since his parents were separated and had multiple cars in each of their current households.

Family and values

Transporting people is also in itself a mode of caring. This might involve protection from COVID on public transport, from the weather, and from inconvenience - but also from immobility.

"I ask her what she wants..., it is she who decides if it is a car or bus."

Family figured strongly for our participants, and was central to the key networks and connections that supported people and to who they supported and stayed connected to. Transport is a key connecting thread in family relationships as people drove family members, relied on family members to drive them to places, and relied on a transport service or public transport to see family members and care for grandchildren, or to borrow cars from each other. Transport and vehicles enables a mode of participation and contribution to social relationship.

Decisions about what modes of transport to use when traveling with family can be contingent on relationships and tasks. For example one man would take his wife shopping in the car, while taking the bus when he goes shopping. He told us that because he knows that her style of shopping requiring getting different things from different shops means that he needs to drive her.

Car ownership as a value

Car ownership was associated not simply with transport but with status.

People interviewed in DH often valued car ownership. One man, for example, loved his Mercedes, and had been given his first one as a gift by his grandfather. The care appeared not only as a mode of transportation but as associated with social status.

People fitted their cars into their daily routines, as something that increased convenience, that (as above) was also used as a mode of caring and as part of everyday family relationships (and obligations), as well as for holidays and days out.

Car use was woven between other modes of transport and was made to fit into routines and affective and physical needs – for example if one participant felt like walking through the neighbourhood and chatting with people he would not take the car.

The value of local

Accessing local shops, parks, and people was valued by participants living in Drottninghög itself. They used local knowledge to know where to go, when they should go out, and how to use the local.

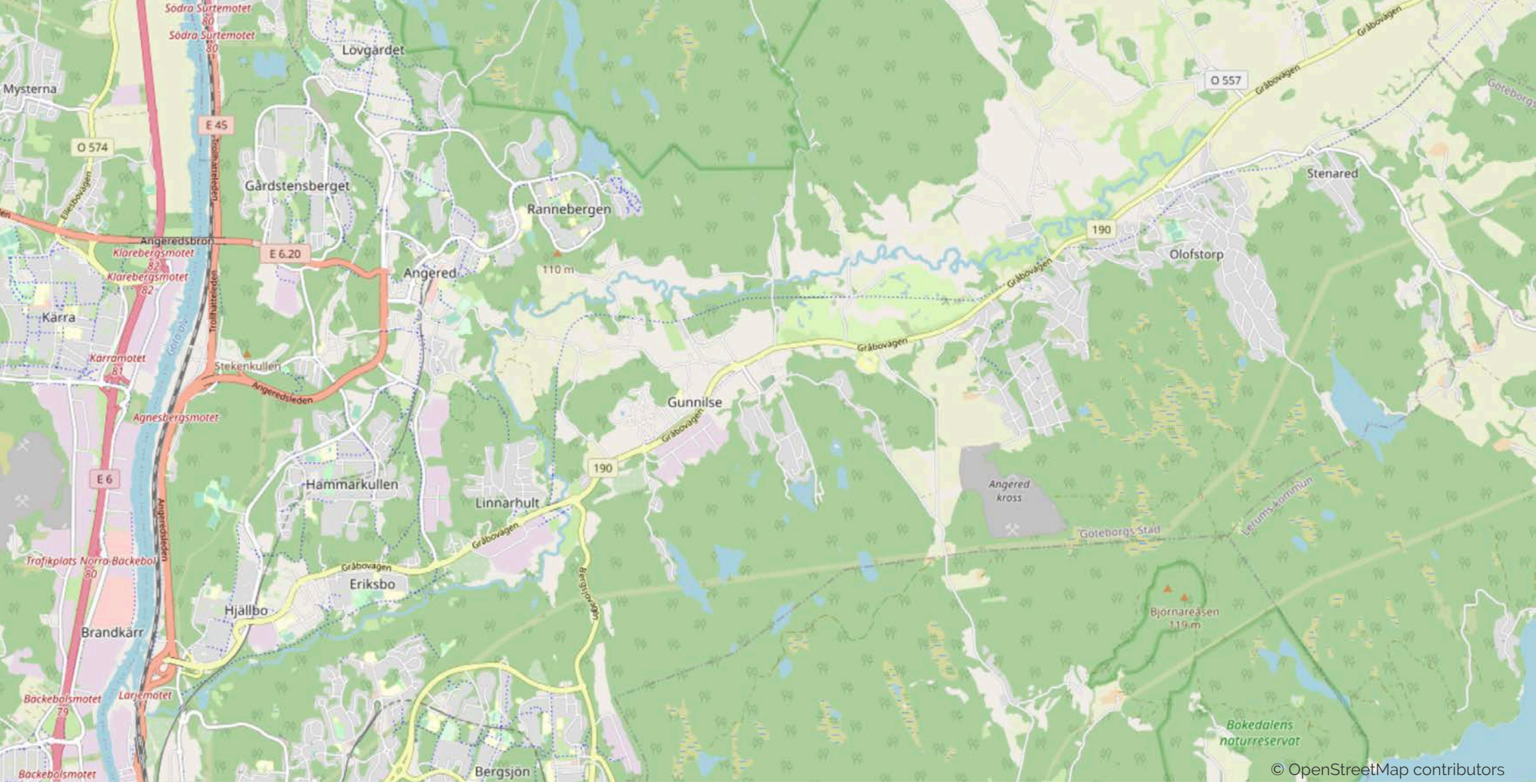
"I have, I know these buses I know where they stop, I know where they are, yes where they start from. So I look at my watch 'but this bus fits now' so I go there and take that bus haha and I am actually lucky all these buses that I mentioned, they are within walking distance only to me, so it is completely comfortable."

People worked out when to go to different shops to get the bargains, and they used the range of local shops rather than just one. This element of the first mile was not something to be got through not a problem, or a challenge. Rather, the first mile was home, an environment they knew well. It was filled with the social, environmental, material and other resources they needed and accessed on an everyday basis, by walking freely or for older and disabled people moving with technological assistance.

This involved being in the local environment rather than simply moving through and past it in a vehicle.

Participants liked walking or moving through the local streets near their homes, where they might bump into old neighbours or friends, or just enjoy observing and relaxing – whether this was to walk the dog, walk to the shops or walk as part of a commute to Helsingborg. For example one participant knows all the bus numbers and that their stops are just a short walk for him if he wants to catch one into Helsingborg.

For people with young kids the local shops, the park, the library and the school were easy to access.



BERGUM GUNNILSE

The area is composed of a set of clusters of residential housing, in a hilly semi-rural landscape along a main road that connects the areas to each other and to the city.

Bergum Gunnilse Bygden

There are three main types of residential clusters: dense, homogenous grids of individual or semi-detached housing with rectangular road plans. More diverse, large villa style houses built densely into the landscape along steep roads. More dispersed housing composed or set among farmyards. Housing is mostly detached houses with gardens. In Olofstorp's centre, there are some recent apartment buildings and smaller hourses. Bergum-Gunnilse has a history as an area of *koloniträdgårdarna* or summer houses.

One central bus line, running along the main road, connects the areas to hubs in the city centre. There is roughly one bus stop for each neighbourhood along the main road – meaning the nearest bus stop may be up to 3km away for residents. The bus is also used to move within the area, especially to the high school or football court near Olofstorp Västra stop.

Most participants commute into the city or another area of Gothenburg like Torslanda, Mölndal or Kortedala for work.

Participants are mostly families with children aged 1-20, but also teenagers and people towards the end of their professional life, with adult children.

Local hubs

There are already a few existing hubs in the area that combine different layers of infrastructure and social life and these are not limited to mobility. Some are situated at planned multimodal hubs (pendelparkering & bus stop) but others are more discrete and flexible.

There are two main mobility hubs in the area, **Olofstorp västra** and **Tappen**. They mostly connect individual modes (walking, cycling, car) to the central bus route. Both also work as pick up points for kids-car-sharing and the occasional, yet rare, car-pooling. Smaller spots for switching or pick-up depend on the ability to park or U-turn.

The *pendelparkering* at ICA is also a relevant hub (not far from Gunnilse skola), where people combine commuting, multimodality and grocery shopping.

Most hubs combine intermodal connections with other layers of activity, like last minute shopping, postal services, fast food, recycling etc.

But families function also as mobility hubs, as do football teams or groups within neighbourhoods.

Practicing local space

Despite a great deal of commuting, there are a lot of destinations and centres of activity in and around the around the area. A common complaint is that there are not enough services and activities in the area.

"I wish we had like an Ica, like the one we have in Gunnilse. It would be nice to have a small Ica like that in Olofstorp. And also- it would be nice to have some medical center like Vårdcentralen, Barnavårdcentralen..."

Centres of activity are mainly the *"centre" of Olofstorp* (by Olofstorp västra), with the school and gymnasium (also a hangout place for kids), sweets shop, flower shop, thai takeaway, pizza, one bar; the football club where some children and families spend most of their free time; and *Tappen*, for rapid transactions more than a meeting place (recycling, DHL, shop, pizza, car pool). At the small ICA Gunnilse many locals do last minute shopping on their way home, some park their car there for that purpose; it is not far from the second high school.

Meeting places are at lakes, playgrounds or around some stretches of road. The football club, friends' houses and *badplatsen* are favourite places to hang out together. The many lakes, woods and trails through the fields are favourite places to be alone, to exercise. But the surrounding nature is also a resource, for hunting, fishing, firewood, farming and tourism businesses.

Centres outside the area are in the city centre, Lerum (local centre, shopping, friends, leisure, sports practice...), Partille (shopping, sports), Grabo (services, medical care,..), Gamlestaden (shopping), Hjällbo (sports practice, hub) and Angered (shopping, hub).

Living locally

How people inhabit the area may be quite different, depending on their biographies, families and where exactly they live.

"I was living in the city, and we had this small garden cottage here. And then we moved into the area, two years later, into a house. We wanted to have a garden, and somewhere to bring friends, having barbecues. This area was the most well built houses in the Gothenburg area, and had a good price. It is a really nice area with a lot of nice nature and stuff like that [...] a more optimal price probably for people buying their first house."

Some residents grew up in BGB; many of them moved there to purchase homes, close to nature at reasonable real estate prices with a connection to the city, often prompted by starting a family.

The apparent socio-demographic homogeneity of the area masks contrasts and divisions that are hard to grasp at first glance. Citizens talk about people "from the area" and the commuting "new" home owners, between living in the countryside or in the homogeneous suburban clusters.

Children are key to local integration, through school and local activities like horse-riding, football and innabandy; when moving to the area, participants most easily interact with other parents or immediate neighbours.

In the less densely settled parts, dependence on neighbours can be stronger to get started, to borrow and maintain machinery and execute essential tasks.

Modal choice

Modal choice varies strongly with seasons, weather, time of day, and due to Covid-19 related recommendations.

"I take my bike because I don't want to go by bus or tram because of the Corona virus. And my daughter needs the car sometimes to go to work so I let her have the car - then I don't need to do exercise when I come home. It takes about 50 minutes to get there and an hour to get home again, so 19 km one way. [...] On Wednesday I start early at work and it's dark in the morning so I don't wanna ride my bike that early when its dark."

People in BGB choose modes of transport depending on seasons, weather, time of day, and safety measures. Combined trips and family logistics influence modal choice, and in particular favour exclusive car travel. Combined trips include going to the gym , shopping or socialising after work but often concern driving children to school or after-school activities or other family logistics (groceries, pets, medical care...).

For some destinations, the difference in travel time with public transport, inconvenience of having to switch transports, insufficient transit options are mentioned as reasons for driving.

Since the pandemic, Lena cycles to work in the city centre, to avoid the bus. The trip takes 1 hour. Most of it leads her along separate bike lanes, and she always chooses the route with prettier landscape where she can. It is particularly challenging on the way back where it is mostly uphill, but the exercise replaces the sports that are cancelled due to the pandemic. Her daughter uses her car to drive to work where there is no convenient early bus connection, unless Lena has to be at work very early herself.

Multimodalities

Households combine several modes of transportation. Combining these modes requires coordination, especially within the family. Not all journeys require passing through bigger hubs. Sometimes, using a single mode of transport (like the car) is more convenient.

"We always have the bike stand in the back of the car, because I always need to drive the bikes very often. But it's less now during winter or fall, because when they come home it's dark, this a dirt road - so there are no like lights or anything - and forest."

Almost every household has some form of multimodality. Parents or children walk, bike or drive to the pendelparkering to take the bus or be picked up by others in their car.

People like Amanda who work or go to school in the centre (like Emma or Oskar), walk or get driven to the bus stop, then change from the blue express to a tram at one of the inner city hubs (like Svingeln) or walk the last part of the journey. Some people drive to stops further away where they can connect directly to a tram.

Often, multimodal arrangements require a great deal of both planning and flexibility for families.

Antonia drives her kids to school and drops off their bikes on the way down at the bus stop on days where they finish early so they can take a tram and bus back and cycle the last 3 km from the bus stop home along a dirt road. In the winter, she prefers to coordinate with her husband to either pick up the kids at school or at the bus stop.

First last mile

In BGB, the first and last mile is a key question in planning and experiencing everyday mobility. The “pendelparkeringen” at each bus stop serve as the hubs for the intermodality made necessary by the single bus routes.

“They say it’s 30km/h here but I think that’s still quite fast for a road like this. You can’t pass two cars. […] When you come over a hill, you can’t really see […] There is hedges, it’s difficult to see around the corner.”

The “last mile” might be a 15-30 minute walk up a steep hill along a winding road with low visibility and no sidewalk. This may be discouraging for biking and walking, especially for children and especially in the winter.

Within the 1km radius around participants’ homes, there are very few destinations for most participants. The immediate surroundings are, however, marked by neighbourhood relationships.

The first/last mile often involves combined activities, dropping off young children at daycare on the way down to the main road, dogs at doggy daycare, or older kids or spouses at the bus stop. On the way back, it is common to stop at ICA for some last minute shopping or at Tappen to pick up a parcel or take gas. In some cases, these are the reason for driving the whole way. Cara has to drive to work despite her preference for taking the foldable bike and bus, because she has to drive her children to school. Simon’s mother drops him off at the bus stop when driving the dog to daycare, even when she works from home.

The value in the first and last mile

The last mile home or to a destination can be rich with experiences. It does not necessarily require solutions. People find solutions that suit personal needs and values.

"Here is the school [and kindergarden] that my kids were going to when they were a bit younger. This here was very convenient for me because you just go down the hill a bit to drop them off. We just took the car to work and then we would just drop them off on the way to work.

... when my older son was like 11 he was getting off the bus and he picked his little brother up at the school and they walked home and that was really good."

The first and last mile question is sometimes made redundant by single mode transport, for which, in many cases, the last mile "challenge" is not the (sole) decisive factor.

The last mile can become a matter of negotiation and coordination. Simon (13) coordinates his walking to the bus stop to be on the same bus as his friends and use this time to socialise.

The last mile may be intensely invested as a personal time-space that serves multiple purposes and/or marks transitions between social times.

Amanda uses the last stretch to work to walk and have time for herself, despite there being faster options available:

I take the Bla Express to Svingeln and then I walk [...] it takes 25 minutes to walk to my work. So it's good because you get some exercice and you are really ...prepared to start working when you arrive... I have music or a podcast in my ears and I walk pretty fast. So I go ten minutes earlier from home so I get this music time. Also often in my work it is also nice to close what has happened [...] and walk it off." (Amanda, 41, mom of 4)

Shortcuts, informal spaces and unmapped paths

Moving between spread-out clusters in BGB, people use alternative ways of reaching their destination, which often involves walking or cycling through shortcuts. By car, avoiding the big road like this is often impossible when connecting areas.

Shortcuts can be footpaths, barred roads or pedestrian ways which more often than not are not appropriately indicated on maps. This also involves the regular cycle paths or pedestrian walkways that require additional knowledge to use. Locals also use shortcuts when driving, taking alternatives roads with less traffic.

Simon likes to take a shortcut through the woods from his neighbourhood in Björsared to the bike lane near *Tappen* at great speed to either reach the bike lane or catch the bus.

By car, it is often necessary to drive down to the main road and drive back up again into a neighbouring cluster. Several people mention that alternative parallel roads between the clusters would be useful. Felix mentions a dispute between residents of two neighbourhoods around financing a connecting road that benefited one side more than the other.

Car ownerships as a necessity

Life in BGB is difficult to imagine without a car. Many households own two cars although many also regret this. The desire to be flexible and the constraint of family logistics make sharing and car pooling difficult to imagine.

"I'm so used to organising my own transportation, in that sense. Having my own car or use the bus by myself. I only see it that way basically. I don't think of solving my transportation issues in any other way, basically."

Many participants live in **households with two cars.** Some also own mobile homes, trailers, mopeds and e-bikes. For several families, one of two cars is a company car and more recent, advanced in technology, while the second car, the household car, is perceived as more of an obligation. Several families find cheaper or temporary solutions (leasing, small city cars...) or keep older cars that fall into disrepair or are passed on to family members.

Many express regret about owning two cars or a desire to switch to greener, more innovate models like electric cars.

One main reason for multiple car ownership is less the necessity for a separate car commute but **the perceived imperative of shuttling children to afterschool activities, mostly locally.** A large portion of car dominated trips is therefore concentrated in the area and in the surrounding burrows (Lerum, Hjällbo, Partille...). People would welcome a better solution for this kind of driving.

But like Paul, many also prefer using their own car for commuting rather than sharing, to be flexible in making combined trips.

Sharing the driving

Driving the kids is a key factor for coordination, sharing and social relations in families. A lot of parents' time is bound up extensively in driving their children or coordinating their mobility sequences.

"I can't do everything I would like to do because I need to drive around kids. I have such busy nights that even walking the dog is difficult. I know that I have put myself in this situation but I can really see the need for taking the kids in different directions - but it must be safe."

A large portion of mobilities in the area revolves around children's afterschool activities such as footbal, innabandy, horse riding and scouts. Bergum's football club in Olofstorp is one of the main destinations and generates travel every day of the week.

Mobility sharing in this area often concerns the shared driving of kids. Lena organises daily with other parents through a whatsapp group, Felix through text messenging. Amanda has different parent groups to organise driving children to Lerum for sports. Most parents try to demonstrate their willingess to contribute, but groups are always changing and some work better than others.

Parents use extensive time during the days and weeks to coordinate the driving. They planning their kids' travels, texting or calling them, coordinating with their partner, contacting other parents, arrange for sports equipment to be in the right place at the right time, plan mealtimes and leaving work around training.

They socialise and meet expectations of parenthood around children's activities at the sports club. And they buy second cars, or commute to work by other means, in order to make the sports acitivities possible.

Sharing and ownership as social glue

Participants share and borrow equipment, and spend time speaking about 'stuff'. Buying and owning is itself a vector for exchange and social integration within the neighbourhood.

"[There is a saw we borrowed from our neighbours], now we have one, they're quite cheap and our neighbours have one and our other neighbours have one. We could have bought one really good one together and used it between us, but we didn't. [...] But there's also this thing about visiting each other's houses and looking in each other's tool sheds and stuff like that."

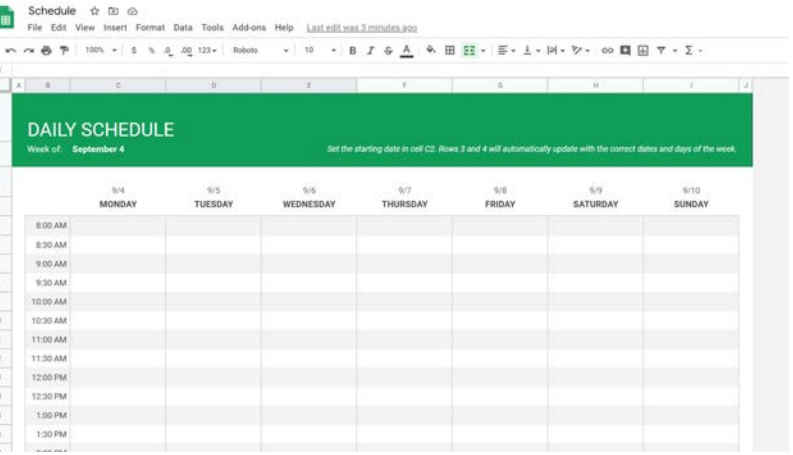
Participants share and borrow equipment like power tools, trailers and saws, lawn-mowers or chainsaws, sometimes tractors. Many say they could share more than they do and that there is a tendency for residents to own equipment rather than systematically sharing it.

Sharing and borrowing is often temporary, transitory and punctual. There are exceptions the ice machine Lena shares with neighbours since a party that they had together.

Owning equipment is also a source of exchange and interaction, borrowing and helping. Antonia tells that conversations with neighbours often concern new acquisitions, comparing brands, and sharing insights.

Changing travel patterns and sharing the driving

With new situations, modalities of sharing and coordination have to be re-negotiated and sometimes new techniques are learned by siblings.



"We started with this when the kids started school this autumn, and so far there hasn't been an instance where kids got left at school. So it's a good way to keep everybody updated, with these two tools, the Google sheet and the WhatsApp. Before school started, we had like a family meeting; they came over here for fika. And we were sitting and discussing for a couple of hours, what we could do and how we would solve it."

Since Linda and Mats got rid of their second car and passed it on to one of their adult children to save money, they drive almost everywhere together. They also share the commute. Over time, they have figured out the best routes depending on who gets dropped off first and on the time of day (and, accordingly, the traffic).

When Gemma's children switched from Gunnilse's school to an international school in the centre to improve her learning, so did the neighbours' children. They met for a fika to coordinate driving the kids to school. Their neighbours suggested using a google sheet with all the childrens' activities where each Sunday night parents plan who picks up whom at what time on which day.

Their older children use public transport and sometimes travel with the younger ones to teach them to one day become autonomous. Gemma's daughter has perfected a system that allow them to get to school quicker while avoiding crowds they feel uncomfortable with.

(Un)safe places

(Modal) choices are made and routes planned with reference to safety. Mental maps of the area and city are split into safe and unsafe places which vary according to time (of day, year) and actors involved.

"One place where I tell my children not to be when it's dark, is the area close to the Rättpsyk, the prison - the road from the main road when you pass Rågården. I tell my youngest daughter not to drive her moped there. Someone was murdered there; I don't know what's going on there but I have a bad feeling about that area."

The areas of Angered and Hjällbo are often described as risky spaces or contested as dangerous. Gemma's daughter adjusts her commute to school to avoid sharing trams or buses with certain groups of people her age who she feels uncomfortable with.

Felix mentions how crossing the "big road" is dangerous especially for children; there is not always a pedestrian crossing and cars drive fast. This limits childrens' autonomous mobility and transit use.

"Nature", which is a main reason to live in BHG constitutes its own set of risk. Darkness, rain, snow, mud, ice and elk encounters are mentioned as frightening people from using footpaths and walking/cycling residential streets alone.

The rarely used barred road behind the psychiatric hospital is either seen as a source of danger for people travelling alone, or a source of joy for Oskar and his friends on their mopeds.

Automated driving

Trust in automated driving is more complicated than trusting a technology to work.

"I just have a hard time seeing how self driving cars would work in real life. I would want to know the technology behind how it works if unpredictable things happen around the car. And if you would go on a tiny road, like the last two kilometres to the Lake where I like to go... it's looking out for animals, since it's in the forest. And then also driving up the steep hills with the tiny stone in the ground I need to make sure that I can drive up safely, and not having the car getting out of my control and sliding down the hill again."

Many participants use the comparison with a bus. Felix reasons that since kids go by bus alone, using an autonomous pod should not be different, but it would take time to get used to and build the trust.

Some add that the bus driver is an uncertainty, too: *"The bus driver could also be drunk, or fall asleep, etc. so maybe it would be more safe with a car without a driver I suppose."* (Lena, 47, in a workshop)

Often, **the trust issue is not so much with the technology but rather other users.** The bus as a public place is reassuring, as opposed to a more enclosed pod or smaller vehicle. The driver or other passengers are seen as a resource for help in emergencies.

Trust is also trusting the kids to use a new service reliably. A group of dads wonders how they could know that their kids get off where they're supposed to. Taking the novelty and excitement out of the service might be part of making it safer for the kids.

Emma (20) thinks **a machine could not do what she does as a driver**: knowing the road and anticipating its particular challenges. The countryside is not like an urban setting and requires human skills.

Staying on the move

Finding efficient solutions for children's mobility is one thing – how we would like them to move is another. People may consider it important for children to be independent – and to remain active.

"If I would try not to take [my] car, I would actually try not go by car at all [...] and I would like my kids to take the bike or walk because I want them to be more active."

Felix drives his children to football practice. He shares this task with other parents from the team. When he is coaching, he sometimes picks up other kids from the same area to take to practice. Since he has to transport equipment for practice, driving is the only option for himself.

He is very interested in solutions that allows his children to arrive to their destination more comfortably and more safely. However, ideally, he would like his kids to walk and bike as much as possible, to remain physically active and autonomous. So for now he coordinates most of his kids' mobility but in time, he would like them to move around more independently.

A key obstacle to their independence is the quality of the physical space and infrastructure around them. Crossing the big main road by themselves is too dangerous for younger children according to him; their range of autonomy is limited by the side of the street that their destinations are own. Visibility and safety in bad weather is another factor.

Living locally and sustainably

Making the local work is also a matter of values.

"We want to stay here. And work here, we are fed up with traffic and the stress in the morning, in the morning traffic it wears you down."

Mats and Linda used to drive to work daily; they owned two cars in their household. Now their children have moved out and they have recently given one of those cars to their adult son, whose car had broken down.

This is a cost-saving measure for them that allows them to develop other projects. They have recently started a local business that occupies both of them two days a week.

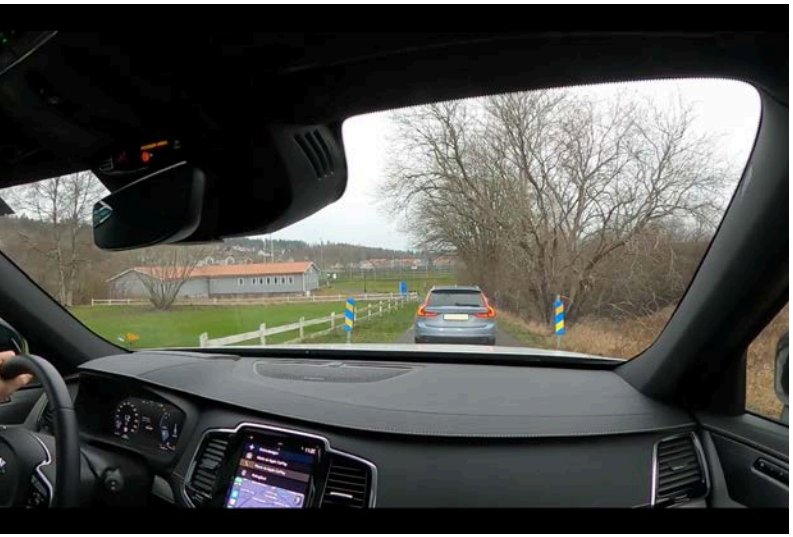
Since they got rid of their second car, they drive to work together and decide on the route according to who gets dropped off first. They dread this as tiring and not very sustainable. There used to be a bus that allowed Linda to take a direct connection to work – although they live 2,5 from the bus stop – but it has been cancelled.

They would like to live car-free, but their activity forces them to have one – commuting and transporting food and equipment for their business. They would love to one day have an electric car in order to protect the environment. They shop as much as they can with local farmers and in a local shop that sells meat, bread etc from independent local producers.

Their dream is to only move, live, work and consume locally.

Contested spaces - the football field dilemma

The football field, and especially the access to it - a small mudpatch serving as a parking lot and a narrow road leading to it through a residential area - are the subject of many ideas for change.



"For a long time, we have requested a car park with lights so that we can see when we reverse if we are hitting any children (...) and have space for tournaments. Ideally we would like another route into this car park to avoid us driving between the houses."

The football field and especially the access to it - small mudpatch as a parking lot with an narrow dirt road leading to it directly through a residential area - are perceived as an important mobility issue.

Suggestions include building a better, bigger car park or building a new access road to the football field from the main road.

Another idea is relocating the entire football club to an empty field next to the school that could be easily accessible from the big road.

Others suggest a better organisation for sharing the drive there so there would be fewer cars.
"[...] a lot of cars go to and from the football field all at the same time. If you could reduce that by collecting people in some kind of sophisticated way with an acceptable level of walking from you own house at an acceptable price..." (Olaf, 45, a co-design workshop)

Dangerous places - Lerum road

The road from Olofstorp to Lerum is dangerous and an object of much public debate.

"Before, they had taxi from the kommun, they got taxi to school but this year they didn't get it. So if they are going by themselves they have to take the bus, then they have to wait 50 minutes at the school. So we usually drive them now, which means I have to drive or my husband had to drive, and then come to work later."

The main road from Olofstorp to Lerum is perceived as dangerous and is an object of public debate; several participants bring it up.

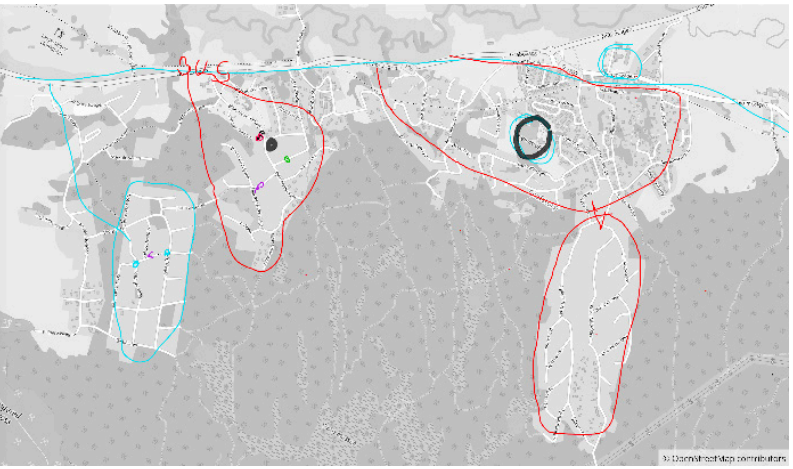
The road is very narrow and poorly lit and people tend to drive fast on it. There is no sidewalk and no bike lane along the road which is flanked by ditches on either side most of the way. There is a bus that goes along the road but it is very infrequent.

Pernilla lives on the road with her family. She used to take her foldable bike to the bus stop in Stenared and then the bus into the city to work, even if it took her longer than driving. She can no longer do that since she has to drive her children to school in the morning. They are no longer allowed to benefit from the school bus and the regular bus has them wait for over an hour before school. Biking along this road is too dangerous. They do bike to Lerum and the nearest lake where there are parallel paths and shortcuts.

Amanda explains how dangerous it is for her kids' friends from Stenared to walk home there because you cannot see them as a driver and there is no footpath.

The Shuttle

The shuttle bus is one imagined solution for coordinating kids' mobilities and for “solving” the first and last mile in the hilly BHG landcape.



“In this area, if there is a slightly bigger shuttle, that can just go back and forth between the different areas, and you are not really booking the shuttle but its on a timetable, to assist the ordinary busses [...] For the kids it’s good to know that if they miss one shuttle there will be another one in like maybe 15 minutes.”

In workshops and interviews, an idea for making travelling in the area easier resembles, in essence, a bus; a manoeuvrable mini bus that goes up the steep winding roads through the neighbourhoods. It would connect the disperse clusters and the clusters to the main bus line, running continuously, at least through rush hours.

Rather than a personalised mobility service, this would be a collective solution that requires no intermediation by an app, that would be continuous and seamless and could be paid for in ways people and their children are already used to.

This aligns partly with the idea proposed by BGU development society, who suggests a continuous shuttle that would be ensured by an autonomous electric vehicle.

Some participants rather seem to describe something more like a conventional bus that offers the extra security of interacting with a driver, a timetable, other passengers.

Developing new ways into nature

Some of the destinations beyond the residential are very far from the bus route. They are difficult to reach without a car. Some people from the area imagine alternative solutions for reaching these destinations.

"The trouble is that the people they have to have a car because it's 5 kilometres into the forest, and tourists that we have the last year we have to pick them up at the bus station if they take that [...] I think if they have this... bus or car or something that was all electric, and pick people up down to the bus station..."

Linda and Mats have developed a new activity that they are very excited about. With some other entrepreneurs, they are developing a place in the natural reserve adjacent to their area that they work together with a local farmer to maintain. From there they offer nature hikes, camping and cooking in the wild.

They explain that since Covid-recommendations, there are a lot more people coming into their part of the forest, which creates traffic on the very narrow and challenging roads. The few parking spaces close to the access to the hiking paths are proving insufficient.

Since there is no access from public transport, they usually pick up tourists with their own car from the nearest bus stop. While the western part of the forest is easily accessible through by public transport, **their main activity is 5km from the bus line.**

They would like for there to be a different solution for people to travel to their part of the woods independently. They would prefer this to be a "sustainable" solution. This could be an on-demand solution or part of a wider network.

(Sub)urban development(s)

There is much talk in the area about development projects that should be done, could be done or should have been done for a long time. Some residents feel like they have been forgotten by the authorities.

"I think that we have been promised a lot of things. I moved here in 2012, and I remember the people then were talking about "oh they're going to build a new school here", "they're going to build a new town centre", "we're going to get a proper community area". And they said back then that they had been promising this for 10 years. And now I've lived here for eight years, so nothing is really happening

.

The only time we have any kind of relationship with the Gothenburg city, is when they want to try and [...] take away our bus stop."

Participants have different ideas for developing the area or for improving the quality of life. Many residents would like to enjoy more local services, meeting places and schools. Others, like some members of BGU, would like to foster economic activity and attractiveness - putting Bergum-Gunnilse 'on the map'.

Plans about developing a new school, housing, services etc. have been talked about for years. Some residents feel like they have been forgotten by the authorities: *"it's less prioritised compared to other parts of the city. The investments and keeping things in order is less prioritised by the city department that should keep track of that, it's the western parts they're more spending money and time."* (Hans, 57)

As some groups push for change, others may feel threatened by public intervention or by changes that are underway.

"People get really really really upset. There's a lot of theories about the public officials [...], about why they're kind of making the decisions that they do." (Antonia, 42)

COMPARING INSIGHTS FROM THE TWO AREAS

Drottninghög (DH) and Bergum-Gunnilse (BGB) are vastly different spaces; one is concentrated and contained, the other is spread out and extensive. They differ in transport options within the area and connections to the city centre. Both are undergoing important changes and waves of renewal. Comparing the areas, we gain valuable knowledge on the first/last mile and mobility hubs.

Centre of Drottninghög Attribution: Jsdo1980, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons

Community and neighbourhood relations

The neighbourhood offers important resources for mobility and everyday life. It is the site of community relations and trust or distrust. What a neighbourhood looks like, however, differs widely between the areas.

Drottninghög

Drottninghög is a dense neighbourhood. Some people have lived there most of their lives, often several generations living close to each other. Participants report having close connections in the neighbourhood.

Family is a key value and central to imagining mobility futures. The densely woven neighbourhood ties represent a key resource.

But there is also distrust and fear of other resident groups, as this elderly lady who avoids going out at night or the girl who dreads biking through Dahlem because of groups of people her age hanging out on the streets. People also suggest suspicions between different groups.

Bergum-Gunnilse

People in Bergum-Gunnilse live in different housing clusters of highly variable density roughly threaded along a main road. Some families are from the area, but many have moved here to own a (first) family home close to nature.

People describe the area as places where people know each other; children may ring at each others' doors to play outside. But this is far from being everyone's uniform experience.

Children are key to a household's integration through school and afterschool activities; it is otherwise possible to not know more than direct neighbours or to have very little activity inside the area.

Different groups or areas are described as having more or less social proximity and trustworthiness. Some describe areas like Angered as dangerous and travel behaviour is adjusted accordingly. Within the area, distinctions are made between people "from there" and the commuting new home owners, between living in the countryside or the homogeneous suburban clusters.

While recruiting participants to AHAII project in Bergum-Gunnilse, critical voices were heard that the villages were abandoned by urban planners. Photo: Vaike Fors

Urban planning and communities at the margin

Participants insist on improving quality of life inside their areas. Both areas have in common that the relationship towards the authorities and urban planning are complicated by feelings of marginalisation.

Drottninghög

Drottninghög has been the subject of a number of urban renovation projects or analyses. These projects involve studies, but also infrastructure programmes and, in particular, building renovations and new housing development that more or less implicitely bear the threat of gentrification. People may fear that they might not be able to live in the area in the way they are used to.

More generally, participants are critical of their area **being framed as a "problem area".** As some participants insist, it is a good area to live in and they appreciate the close relationship and the convenience they enjoy. They do not feel that being targeted as an issue helps them to feel more comfortable in their everyday space.

Bergum-Gunnilse

Recurrently, participants in the area mention development projects that have been announced without being undertaken. They mention how more local activities, services and infrastructures would make the area more like a real neighbourhood, more easily liveable and also generate less traffic. Shops and cafés in the centre of Olofstorp would help, as well as actual meeting places.

A development project near the current ICA market is regularly brought up that involved a new school and housing. Announced over a decade ago, it is now cited as an example for unfulfilled expectations. Residents of the area mention that they **feel forgotten or left out** by the city and authorities and their developments and projects.

While certain groups of residents activily push and monitor development projects, others have come to be very wary of public intervention, fearing that it would result in their disadvantage or threaten urban life.

Sharing and neighbour relations

How people share and with whom is linked to how they inhabit their neighbourhood. Many sharing practices are already in place and new ones are being learned. There are limits to whom people are willing to share what with, and these are based on considerations of practicality and trust.

Would you like to share this car with neighbours? AHA II recruitment event at Drottninghög för sharing experiment. Photo: Vaike Fors

Drottninghög

Families are the most prominent site of (car) sharing. Parents and grand-parents provide transport services for children and youngsters; family members borrow each other's cars, do each others' shopping. Young adults may rely on their parents' cars as their own.

Support networks can extend to neighbourhood relations, as in the case of the two girls who always coordinate with each other to do their shopping, or a disabled participant who is able to use transport when invited by neighbours or friends.

Abstract idea of sharing with strangers are a lot more problematic than the organic sharing practices already in place.

Bergum-Gunnilse

Families are the main realm of sharing but neighbourhood relations also further sharing. Most importantly, this involves driving the children, which is mostly based on sports teams or school rather than proximity itself. For themselves, people preferred the flexibility of their own car over carpooling.

Some neighbours share responsibility for road upkeep and may be actively involved in development projects for the neighbourhood. Neighbours occasionally share tools and equipment but it is more common and acceptable to own one's own tools, which are then sometimes the object of shared knowledge and interaction among neighbours.

People prefer sharing with people they know. This young adult for instance, like Emma who shares clothes with her friends in the area but would not extend the practice to others.

Car ownership(s) and networks of sharing

Car ownership may be a necessity or burden, but also imply symbolic value or allow for modes of caring and participation. Top-down mobility solutions might not have anything to do with local 'problems'.

Photo from research participant that shows how his wife took the bike with her when she traveled with him in his car to work so she could cycle home

Drottninghög

Car ownership implies social and symbolic status - the use of the car to drive through the parts of the locality that take you out on your commute might be performative as much as convenient. Car ownership is strongly associated with symbolic value, status, an extension of identity.

Networks of car sharing exist in close networks and replacing them with shared micromobilities such as electric bike might not have the same social role. The first mile thus might be part of someone's social identity.

Car ownership allows for certain modes of caring: helping out neighbours and family members, being able to share tasks. There is a symbolic importance associated with being able to lend, rather than having to borrow. One car may therefore already centralise a network of (meaningful) relationships.

Top-down mobilities solutions might not have anything to do with everyday challenges and local 'problems'.

Bergum-Gunnilse

(Multiple) car ownerships is seen as given or a necessity. Symbolic value is attached to owning electric cars; "Greener" or innovative alternatives are seen to be of greater value. Many people express regret about owning two cars, citing financial burden or environmental concerns. For some participants, however, there is intrinsic value to owning and updating cars: love of driving, speed, technology, sophistication and discovery.

Double car ownership is core to ensure family logistics. Through shared driving arrangements, it is also a way to perform parenthood and a means of integration in local networks of mutual support.

There is a life stage difference when it comes to individual car ownership; for the young first time drivers, a car represents independence, freedom, status, identity.

New mobility solutions would need to fit into these existing arrangements for family logistics, children's mobility, sharing and performing.

Parenting mobilities

Families, neighbour relations and groups are central to organising mobility. Participating in children's mobilities is also a key part of parenting or doing familily.

Photo from Bergum-Gunnilse by Meike Brodersen

Drottninghög

Families function as mobility hubs and coordinating mobilities appears as a central aspect of parenting.

Youngsters rely heavily on parents to solve points of friction in otherwise partly independent mobilities. Parents take the role of a flexible, trustworthy mobility hub.

Youth rely on their parents for continuous mobility. If the students (cp 3) experience a breakdown in transport - a train doesn't arrive, or a bus is delayed, the main go-to is their parents.

Two girls from Drottninghög include parents' cars into their daily travel planning but also work around special needs within their families. They have a role to play in assisting family members in need, sharing time together, or connecting their families to resources in the area.

Bergum-Gunnilse

Coordinating children's mobilities is central to parenting and to familiies' mobilities.

A lot of travels focus on taking the kids to activities. Car ownership is part of caring duties. When parents of a sports team share the task of driving kids through messenger groups for example, driving and being involved in coordination becomes part of performing parenthood.

Families function as mobility hubs in their own right and parents compensate for frictions in mobility systems.

Simon usually takes the bus and runs through a shortcut through the woods to get there. When he wakes up late (which is more or less frequent depending on if you as him or his mother), he hopes that his parents are not in a meeting and asks them to drive him all the way to school, rather than just to the bus stop.

The last mile is a social place at Drottninghög. Photo: Vaike Fors

What does the first and last mile mean in each of the areas?

The first and last miles of journeys look very different from one area to another. But the last mile is not always a problem that needs solving but rather an opportunity for sociability, exercise or quality alone-time – and holds central features such as popular shortcuts and informal meeting places.

Drottninghög

The first mile is often also the last, as the area itself concentrates many destinations, be it on foot, by car or by bike. It can also be a walk to a bus stop or from the parking space. Parking and which spaces are driveable or not are key issues within the last mile.

The first and last mile is a space of sociability; People use it to stop and discuss with neighbours on their way. These dense neighbourhood relations influence modal choice, either for walking to be able to stop and socialise, or for driving to display car ownership, etc....

The first mile is not something to be got through, or a problem - the first mile is home, a familiar environment full of the social, environmental, material and other resources that they need and access on an everyday basis, by walking freely or with technological assistance for older and disabled people.

Bergum-Gunnilse

The last mile is key for overall mobility practices. Given the geography, the last mile may require considerable effort and coordination. Typically, the first mile would be a distance from the residence to a bus stop on the Express line on the main road. Depending on where people live, this might be a long hike up a steep narrow road with little visibility or trek along a dirt path through fields and woods. **Within the last mile, people find close neighbourhood ties, or a pre-school, playground or bus stop.**

People walk, drive, bike or carpool these distances, depending on weather, season and circumstance. Most importantly, the first mile is a matter of coordination and family logistics. This often results in choosing the car for the entire trip to be able to combine trips.

But the first/last mile do not necessarily appear as a challenge but as a means for socialising or alone time, as people meet neighbours, youngsters coordinate to take the bus together, parents drop off kids conveniently at pre-school on the way to the bus or commuters walk the last bit of their journey to exercise and listen to podcasts.

The commute parking hub in Bergum Gunnilse. Photo Meike Brodersen

The different types of Mobility Hubs

In both areas, several hubs already exist. Some hubs rely on fixed infrastructure - others on flexible arrangements and informal agreements. Families or groups can also be hubs – so hubs may be actually be mobile themselves. Where Drottninghög is like one big hub, in Bergum-Gunnilse a single hub would hardly work.

Drottninghög

The area already has a number of existing hubs. Centres of activity like the local library also function as meeting places and mobility hubs. The Growers' Association, pool, gym and local shops also concentrate a good deal of activity. Other centres of activity are in the immediately surrounding areas like Frederiksdal/Filborna, such as the pool/sports centre there.

The local area's concentrated essential activities and mobilities make the area itself a hub. It centralises a range of mobilities and concentrates most travel destinations for some people, including for shopping, work, socialising. It also functions as a centre for surrounding areas.

Families, groups of friends or neighbourhood clusters also work as hubs. Families centralise and coordinate the mobilities of their members, exchange information; adults coordinate the shared shuttling of their kids, familiy members share cars.

Bergum-Gunnilse

There are already several key hubs in the area, the most prominent are the petrol station with pendelparkering and bus stop that combines a number of functions and activites, and Olofstorp Västra, close to the school, the football court and most of the few businesses in the area. ICA and adjacent bus stops also work as a smaller hub. Among many combined activites, the hubs support some level of intermodality, with people moving between walking, driving or biking to bus or sometimes carpooling (for kids' sports practice).

Smaller hubs and centres of activity are less visible and more private or may shift over time and according to users, like individual houses, places to U-turn etc.

Commuters rely on bigger transport hubs in or towards the city such as Svingeln, Angered, Hjällbo or Lerums pendelparkering.

Families or groups may serve as hubs in their own right, dispatching mobilities, routes and sharing practices.

C

RE-FRAMING IDEAS

RE-FRAMING CONCEPTS AND QUESTIONS OF FUTURE MOBILITY

This section highlights a set of dominant assumptions about the future of transport mobility and shows how our findings and insights complicate and re-frame these assumptions.

These re-framings are based on the values and needs of people who use transport or travel on an everyday basis. The re-framings turn upside down the assumptions that guide the design of future first and last mile mobilities, mobility hubs and digital services. Instead they reveal that we need to tailor these offerings so that they also account for factors such as the values that guide everyday life mobility practices, the social elements of mobility, and the approaches people already have to sharing.

Re-framing the first and last mile

In dominant narratives, first and last mile mobility is often associated with micro-mobility – bike shares, electric bike shares and such like, in big cities and for a demographic who can access and use such services.

In contrast, our ethnography showed that people in Drottninghög and Bergum-Gunnilse use their neighbourhood and the meanings of their first and last miles very differently.

- They use cars, not because they are opposed to walking, cycling or public transport, rather because their everyday family logistics, regimes of caring for others, or timescales make it impossible to do anything else.

- Instead of needing personalised mobility services, these people might benefit more from **being mobile in ways that are collective, that are shaped around and negotiated within the needs of family units.**

- The imaginations brought forward by the citizens suggest the ideal of frequent, reliable mobility on a set trajectory, that doesn't require sharing, interaction, planning or the mediation through an app or a third party nor the transfer and sharing of personal data.

- In contrast to the idea of an integrated service, designed towards flexible individual needs and fluctuating demands, mobility in Bergum-Gunnilse and Drottninghög is often experienced as being coordinated and collective. Hence there are demands for solutions that integrate with existing, and often fairly constant, mobility arrangements.

- Rather than having solutions for getting out of the area more efficiently, people are concerned with improving quality of life and community inside the area, within the range of the first and last mile. In Drottninghög, these might be questions of safety or accessibility; in Bergum, there are demands for investing in developing activities within the area (schools, grocery shops, meeting places), but also some essential infrastructure like bike paths, pedestrian crossings and connecting roads.

Re-framing the Mobility Hub

Mobility hubs are present in both areas, both through infrastructure destined for intermodality and through local, flexible arrangements and informal habits. Popular hubs are seldom limited to mobility. The idea of a hub has to be extended to include mobile, flexible social situations.

Our ethnography challenges ideas of what a mobility hub can and should be. What, in fact, is a hub?

Most hubs that are widely used are not limited to mobility and intermodality. They combine several layers of activities. While some of them are in obvious places that are planned for this function – bus stops, pendelparkeringen, stations – more general areas and more informal habits can also build hubs. An area that works well as a hub for one thing might, however, not be possible to replicate for another.

As groups of people and their places of virtual communication centralise and coordinate mobilities, does the mobility hub itself have to be mobile – follow the action – and be throught of as despatialised?

Do mobility hubs also exist as a social situation, which reshapes itself as it moves and reconfigures – what holds it together (social infrastructure)?

The research reframes the mobility as a physical hub or infrastrucutre oriented to transportation, raising new reflections such as:

- A mobility hub has to be mobile and flexible – it goes where the people are
- The mobility hub is a social situation – it is held together through relations of parenting and community
- Mobility hubs emerge flexibly in different places and spaces – across webs of social interaction

From PERSONALISATION to TAILORING

Personalisation is a key theme in industry, consultancy and policy reports about the future of mobility. Yet personalisation is about creating services for an imagined individual consumer. The ethnography tells us that the people we need to design future mobilities services for diverse people who travel in contexts that are very often social and family based.

Flexibility is an important argument for using one's own car and is a key factor for accepting more costly transport services.

However, **participants mention how many of their mobility needs are relatively regular and limited in scope,** even if they require some adaptation. For example, Jonas says most of his trips go to a few local destinations that remain the same over time and take place within a three hour window on weekdays.

The implication is that we need to tailor new services, from below, based on people's real everyday needs.

From EFFICIENCY to VALUES of transport mobilities

Our ethnography showed that the ways in which people use transport mobilities are underpinned by a number of everyday values.

These values do not necessarily correlate with the principles of economic or time efficiency that characterise dominant narratives about the objectives of seamless transport systems. Instead these values are evident in how people organise travel to suit their actual everyday life situations.

Meandering through public space is not time-efficient but it offers valued social and environmental experiences.

Waiting in familiar and safe spaces might appear to waste time, but in reality waiting time has a value as it is used effectively for social connections, various activities and for digital and social media checking.

Family transport arrangements might involve complex coordination, but they are underpinned by the value given to relationships and the care they demonstrate. Transport arrangements of parents extend social relations in the family and community.

Safety for children is a central aspect for parents. Trust or anxieties for specific areas, groups of people, night time, and weather conditions influence parents' interference with childrens' mobility.

Teenagers value minute-to-minute real-time updates on transportation over regularity or punctuality. They use parents for back-up plans in breakdowns of transportation.

Car ownership is not be environmentally sustainable but cars might be valued as a status symbol or be part of a professional identity or obligation even when people wish to own fewer cars.

From SINGULAR TRANSPORT to SOCIAL TRAVEL

Our ethnography shows that travel is social, the first and last mile are experienced socially, and the modes of transport used are determined socially. For example driving the car might bring social status, it might be a social obligation to take a family member shopping, or it might be a form of care for a family member. Walking the first or last mile might be chosen because it is social.

Most travel involves coordination and is influenced by relationships with others. Even when people mention the need for individual flexibility (for example against carpooling for work), the key argument is often in relation to others – having to be able to be there for the kids, meeting people after work, going to sports' practices. A lot of the daily mobility routines involve coordination and sharing with family and neighbours.

The implication is that we need to design future mobilities for a social world, where social priorities exist, rather than for a technological world of individuals.

From SHARING ECONOMY to COMMUNITIES OF SHARERS

From ownership to access-based practices, sharing already exists in many shapes and forms. Anybody can be a provider of services and goods in their peer networks.

Sharing is often complimentary or substitute to the ownership of a car. Where car ownership is generally associated with status, "sharing" services as a mobility choice do not seem to have a status yet.

Sharing practices extend beyond sharing assets. While sharing cars or equipment with strangers can be difficult, participants share all kinds of things with friends and families. They share responsibility for road maintenance, knowledge about the area, upkeep for a common garden. People share the task of driving kids to their destinations, which implies sharing time, cars, and caring responsibilities.
Based on these sharing practices, sharing takes on a number of meanings.

- Sharing can imply borrowing (as in **borrowing** a car from friends or family), **dividing** (like space in the allotment garden) or **exchanging** (trading favors or things through neighbourhood and friendship networks), as well as **communal sharing** (as in the case of the laundry rooms in DH).

These need to be distinguished from commercial and intermediated activities:

- **lending digitally** (as the couple in BGB renting out their caravan through a P2P website) or **accessing** (renting out bikes using the library card).

From BUILT SPACE to LIVED SPACES

Future mobility is often understood as solving mobility problems through technical solutions in the built environment. Mobility hubs, roads, railways and even bus stops are thought of in terms of physically built infrastructure; a neighbourhood as geographic area; and everyday mobilities as ways to cross physical distance. However, our ethnography shows that mobilities entail much more than transforming the physical environment.

Everyday life and mobility happen not only in a place but in particular social spaces and times. For design and ethnography, that means shifting attention towards the way local networks, relationships, meanings and ideas works together with(in) the actual place. It also means seeing these spaces as being continuously (re)made within these complex contexts.

The neighbourhood happens both online and offline, in groups chats, at the back of the bus, at the kitchen counter. The time in the car is alone time, walking the dog and chatting to neighbours can be a way to build local space.

In this way, a field can be an important hub during a football game. A bus stop can be a practical intermodal pivot for some in their daily mobilities, while impossible to reach for visually impaired people. It can be a valuable hangout spot for one group of friends but a threatening obstacle for others.

Infrastructure is indeed an important factor in mobility decisions. A missing bike lane, street lighting or pedestrian crossing will encourage people to drive children or vulnerable kin rather than letting them walk or bike. But mobility is about more than moving from A to B and demands much attention to the lived spaces and contexts in which they are embedded.

D

IDEAS FORWARD

IDEAS FORWARD

A stakeholder workshop (January 2020) was an opportunity to share and discuss insights from the ethnographic fieldwork with AHAII partners and to imagine new ideas for moving forward. This catalogue was introduced for the first time and it is at this point that it becomes an even more collaborative and dynamic document.

1 After reading through INSIGHTS from the ethnography in SECTION B participants got together in 4 groups to discuss how and why people in DH/BGB transport themselves, other people and things and what happens during the first and last mile of transport. These discussions lead to **new insights**, **questions** and **ideas** and based on slides participants chose from the catalogue (p.73-80).

2 Having been presented with the COMPARISONS between the two areas and the REFRAMINGS in SECTION C, discussion groups came up with new realisations, questions and suggestions around some emerging core themes (p. 81-82).

3 The groups then were invited to imagine best and worst case scenarios for mobility hubs and first and last mile travel, creating 2 scenarios (1 **best-case** and 1 **worst-case**) for a mobility hub or first-last mile in one area based on the preceding discussions (p.77-79).

Moving on from these collaborative efforts, the next steps to take by the different partners in the project were established.

Sharing - Family logistics

In both areas, we can see family as a mobility hub and parents as a mobility service.

Children are at the centre of many scenarios. Enormous efforts are involved in planning and coordination between parents to facilitate picking up/dropping off kids and their friends.

One challenge will be to facilitate planning, e.g. by sharing through interactive maps to join other people's travels.

- How can we support parents in planning their driving of kids?
- How can we create an interface between the family and the hyperlocal?
- How to create (sharing) services that accommodate accessibility in a good way?
- How to ensure logistics like cleanliness of shared vehicles?

Multimodalities

In order for multimodalities to work, we need to:

- Solve the 'puzzle close to home' and support the sometimes complicated multimodal family logistics.
- Invent new protections against local weather conditions (covered walking & bike lanes, covered bikes or rikshaws).
- Account for quality of road safety and infrastructure.

Car ownership

The car has traditionally been (and still is) a place for privacy, comfort and status. Status connected to the car goes beyond DH; this theme runs through our entire society. It is important not to equal a demographic/area to a social class and tie low income to car as status - this would also be true for high income groups.

- What is the most important thing, the car as a status symbol, or the car as a means of transportation?
- How can we create a feeling of higher status concerning car sharing, whithout replacing bikes and walks with car sharing?

Infrastructure

The problem is not a shared mobility solution, but the roads themselves that are only made for cars. Physical planning and infrastructure, with no place for walking or biking, cause parents to shuttle kids to/from places - an additional service might replace the parent but doesn't solve the root cause.

- Can we ensure safe walking and bike paths ?

In BGB, there is more and more housing being built without the infrastructure being improved to support this sort of growth.

Improving road infrastructure raises the question of road ownership and responsibility. We must

- Find ways to work with local roads to make things better.
- Encourage collaboration and infrastructure improvement across different road ownerships.
- Collaborate across municipalities and regions and eliminate borders between stakeholders.

Living locally

In BGB, there seems to be a tension between centrality and things being dispersed, things are missing in between.

Regarding sustainability, there seems to be a tension between ideal and actual behaviour.

- How can we capture the ambitions?
- What are the constraints and how does that tension play out in people's lives?

Mobility hubs

What is a mobility hub?

- Does it need to be a house with connection to other modalities, or can it be something else?
- A hub like Tappen is a gathering place food with food and services for different populations.
- There are informal, fluid hubs to be considered.

We should:

- Take advantage of existing practices and develop more hubs and services around them
- Create better things around in the existing hubs (like a bike helmet storage).
- Make hubs flexible and adapt dynamically in terms of their location according to time (weekdays, seasons...) and shifting practices.

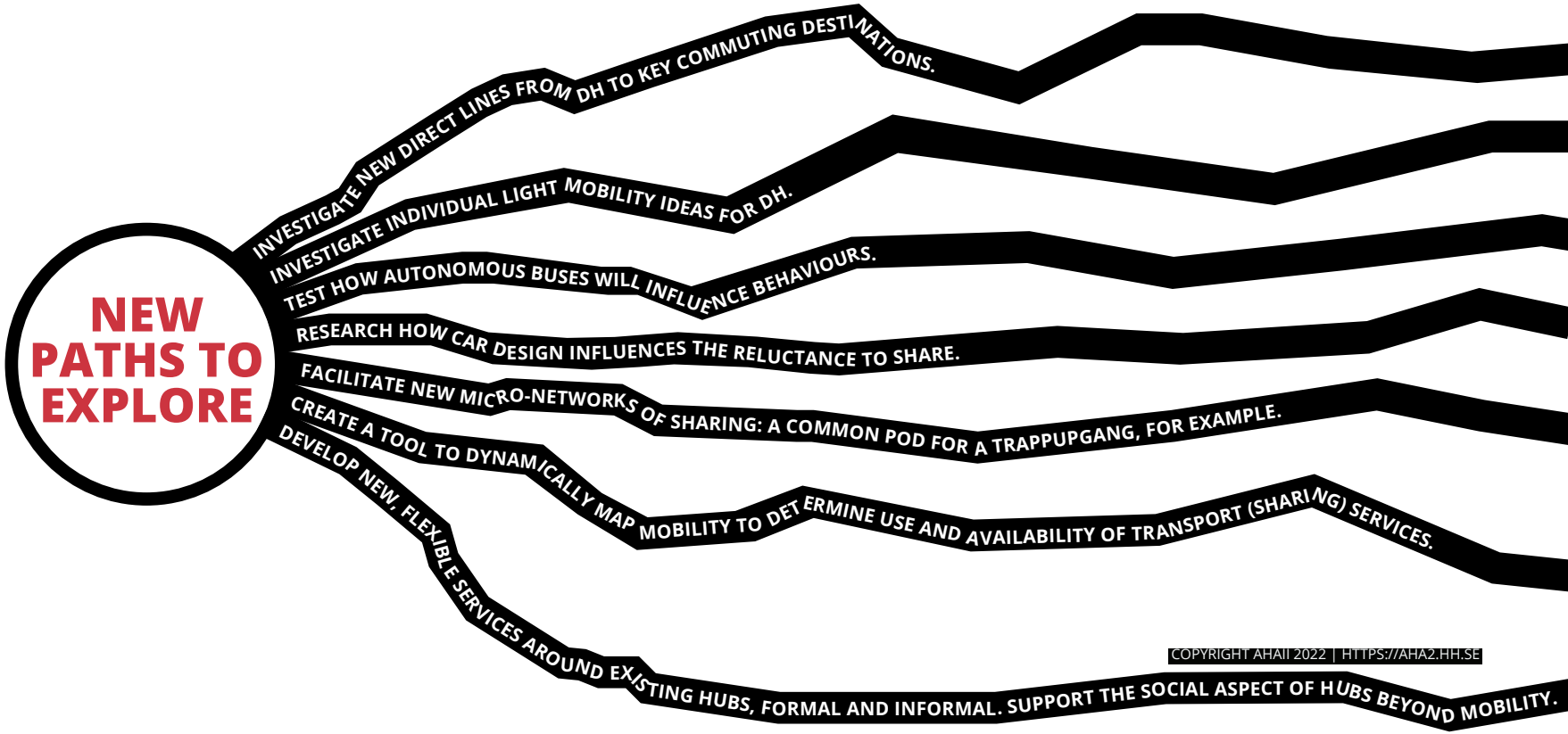
Key insights from applying the re-framings

The collaborative work around the catalogue's fieldwork and reframings created reflections on the social aspects of mobility, raised new questions and concerns around , and new paths to explore in the project. Examples of such insights focused on:

- Hubs can be seen more broadly as social places, as processes, as flexible arrangements. They should be designed based on existing places and practices.
- Quality of life needs to be considered, and can be complementary with efficiency.
- Mobility is social and relationship networks, symbolic value and socialising and "me-time" need to be taken into account for transport solutions. Familiy logistics are at the heart of many mobility decisions; new solutions need to account for mobilities as a system.
- Social factors need to be considered when rethinking the first/last mile, when considering new solutions such as new direct bus lines to facilitate commuting through hubs.
- Future sharing propositions need to account for existing sharing practices rather than supplant them.

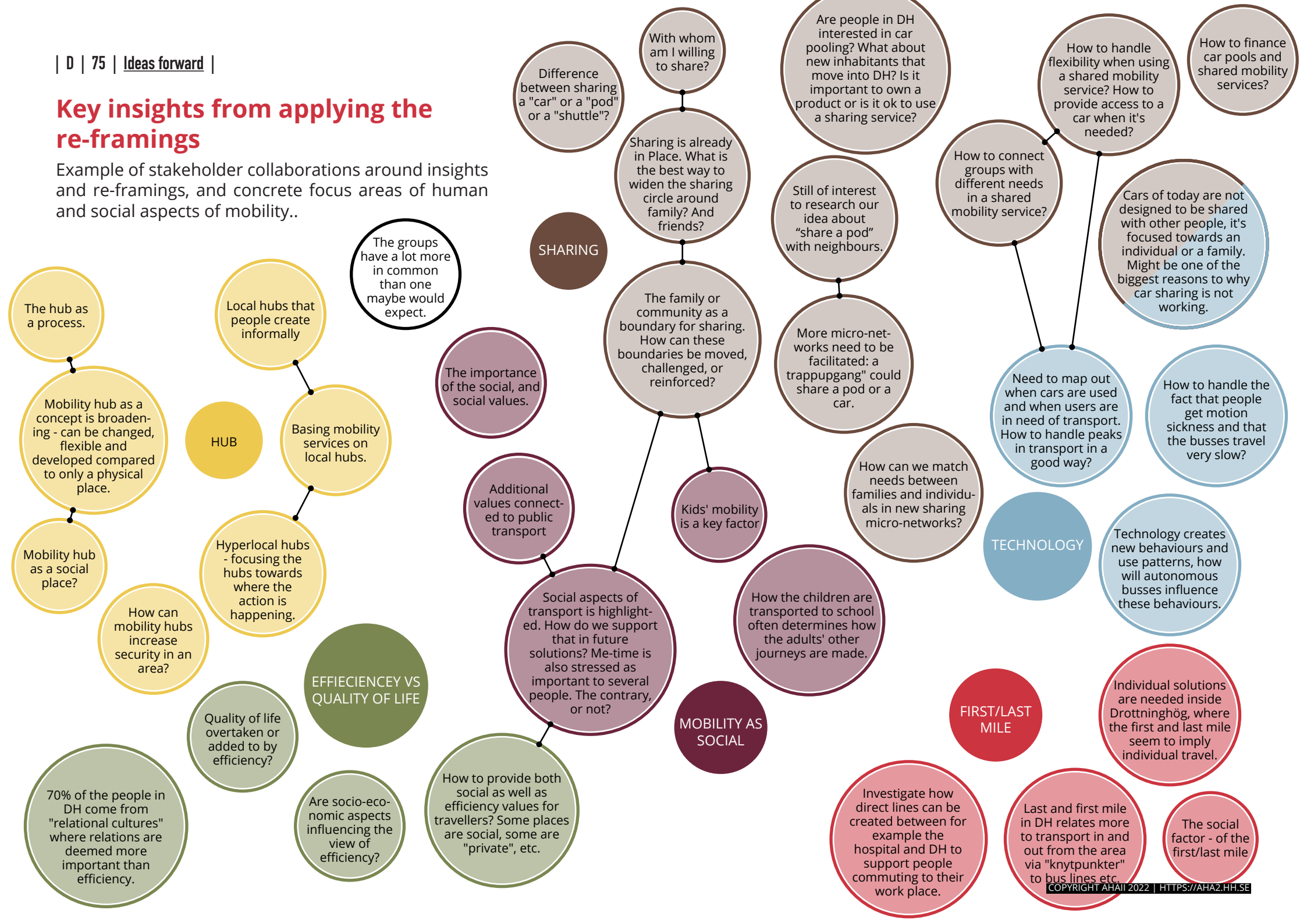
New sharing services raise a number of practical issues e.g.:

- How to identify and conciliate different needs and peaks in using the service?
- How to pair users with different or similar needs to make their use complimentary?
- How to also allow for flexiblity of access to the service?
- How to identify vehicles adapted to sharing?
- How to finance the infrastructures of shared mobility services?



Key insights from applying the re-framings

Example of stakeholder collaborations around insights and re-framings, and concrete focus areas of human and social aspects of mobility..



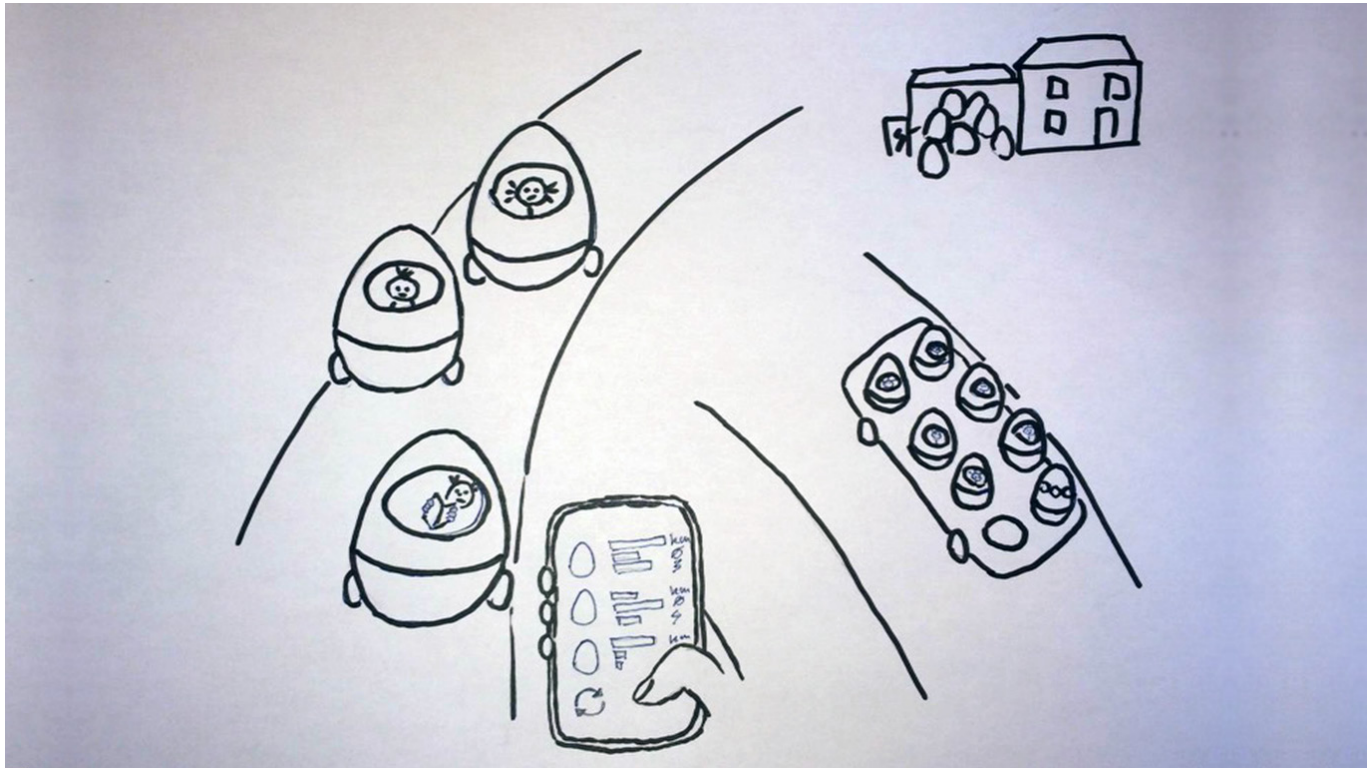
Best and worst case scenarios for mobility hubs and for the first and last mile in Bergum-Gunnilse and Drottninghög

Based on collaborative work around the reframings, stakeholders worked on key concepts of mobility hubs, first/last mile, efficiency, personalisation, etc. In groups, they worked to imagine best and worst-case scenarios for mobility hubs and first and last mile travel. Each group created 4 scenarios (2 **worst-case** and 2 **best-case**) for a mobility hub or first-last mile in one of the community areas, based on their previous discussions of interest points from the catalogue.

The scenarios are summarised in the following two worst case and two best case scenarios.

Lonely and Excluding Pod life
Disruptive Mobility Hub

Value oriented travelling
Pop up and mobile hubs



Lonely and Excluding Pod life

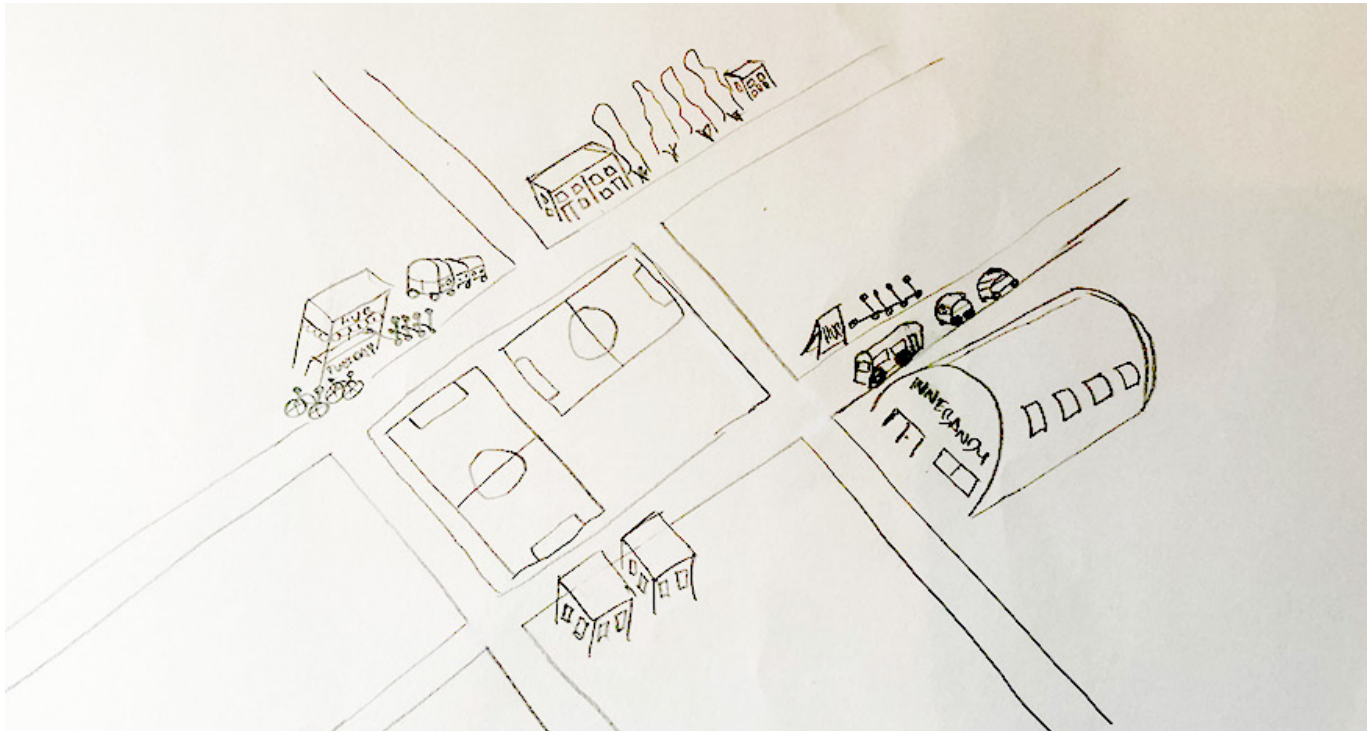
Everyone (kids, adults) has access to their own pod. The mileage of a pod is limited and when it runs out you have to e.g. walk or cycle. Wealthy families buy more pods to increase the amount of mileage they have. Family members trade their pod mileage with each other to maximise the use. Pods or shuttles provide solutions that target mainly high income families based on business travel needs. Oversized shuttles becomes a status symbol.

When travelling in groups pods connect together. This way each person is in their own pod and/ or everything becomes delivered in automated delivery services. This limits the social interaction between the people travelling and the social interaction between people in shops etc.

Disruptive Mobility Hubs

City or a company builds a mobility hub on the other side of the road from where an informal mobility hub already is today. Another company populates the area with a lot of scooters. These solutions do not consider what the local community needs and value and they do not fit with what already exists.

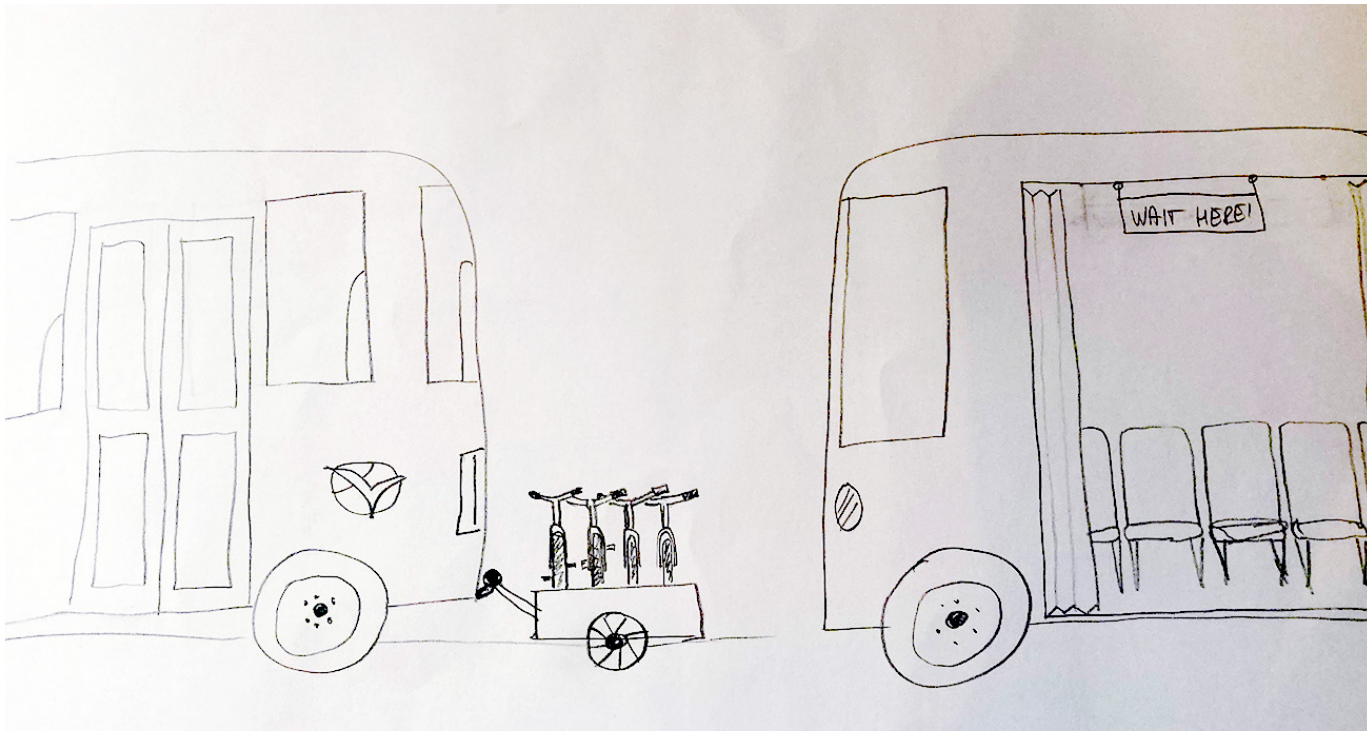
Too many hubs start to compete in the same area and disrupts already existing social hub solutions.



Value oriented travelling

Additional values connected to public transportation. For example, shuttle that provides access to places based on local needs and values, and when it is needed. Transport both within and between different areas that caters for accessibility for all (for example the growing senior population), and not only in terms of efficiency but also in terms of 'getting around' as a social endeavor. Flexible enough to cater for changing and diverse populations, supporting the agency of micro networks (for example existing communities of neighbours and family constellations, enhancing various kinds of public transport where it is needed (i. e soccer practices).

Care by agent - An agent at home takes care of your bookings. Pod is available when you need it. For example when it's raining the agent has booked a pod which is waiting for you when you step out of your home.



Pop up and mobility hub

Build on the existing hubs by exploring what is missing and what can be made better. Collaborate with existing infrastructure by adding other services e.g. shuttle as waiting shelter or moving e-scooters around by attaching them to the back of a bus or a train.

Hubs that emerge during soccer training, innebandy practice or on a day of some other activity. The hub is not necessarily a physical building, it can be mobile like a fleet of cars or a shuttle that moves around as needed e.g. school buses or walk in buses.

E

THE AHA WORKSHOP GUIDE

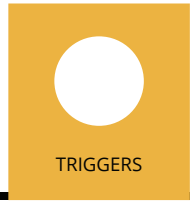
DESIGN ETHNOGRAPHIC COMPONENTS

The developed AHA II framework has three key methodological components. We built relations with stakeholder and create engagement with participants through design ethnographic explorations (interviews, drive-alongs, co-creative workshops). Throughout these activities, we used a series of triggers to prompt discussions and ideas that we worked into tools, which we could then use to further iterate on our results and facilitate workshops inside and outside of the project. This sections introduces you to these core components, explains how we used them in AHA and provides ideas on how to use them in other contexts. We have described these components below.

Design Ethnographic **Engagements**

- Ethnographic explorations
- Co-creative workshops
- Structuring relations

Several different modes of engagement were part of the AHA II process. We conducted online interviews with participants from each of the areas and followed participants' lead driving along through the areas in filmed and recorded two-car convoys. Local residents and stakeholders engaged through Future Workshops, Shared Mobility workshops and Speculative Workshops, as well as regular Living Meet-Ups. Local neighbourhood organisations, schools, administrations and friendship networks were involved in building relations aournd the project.



Design Ethnographic **Triggers**

- Canvases, Vignettes
- Local maps, visualisations
- Speculative Narratives, films

Throughout these activities we used different triggers to prompt or ground discussions. These included interactive maps, where workshop and interview participants could share visions of their area, identify important present and future places and co-design ways to inhabit them. We used visuals of (speculative) AVs to discuss how and if such systems could be part of common mobilities. Our video-recorded two-car drive-along set-ups encouraged participants to share ideas and incorporated knowledge about their environment. We also used narratives vignettes and canvases to stimulate and structure future scenarios and we iterated on the resulting speculative narratives through films and visuals in other workshops.

Design Ethnographic **Transformation Tools**

- Mobility Typology
- Friction Cards
- The Common Ground Game

Based on this Design Ethnographic process, we developed a set of innovate interventional tools to provoke and facilitate co-creative, speculative processes. Built on the emerging themes, questions and narratives from our encounters, all of these tools served to challenge and iterate on scenarios that were co-designed by participants and stakeholders in the project. Presenting as table-top games and graphic storytelling vignettes, these tools were designed to be used and adapted beyond the project in encounters around future mobility.

SHARED MOBILITY WORKSHOPS

Ethnographic material can be used in workshops with citizens to produce the ideas for iterations with other stakeholders. Based on results from our ethnography, we set up a series of online workshops where participants discussed new ideas for everyday mobility in small groups with existing local relationships. Starting from the prompt of a Shared Autonomous Vehicle, they produced a series of principles that we used to create four main anchor points for other stakeholders to speculate from.

1 **Use ethnographic insights for co-design**

We used our ethnographic insights from **chapter B** to organise workshops, select participants, identify relevant themes and adapt questions to each group. We used our knowledge of the area and the friction points in everyday mobility to think about situations where shared or autonomous mobility could help tease out new solutions. Our insights into how people in the area already coordinated shared transport in everyday mobilities to moderate discussions.

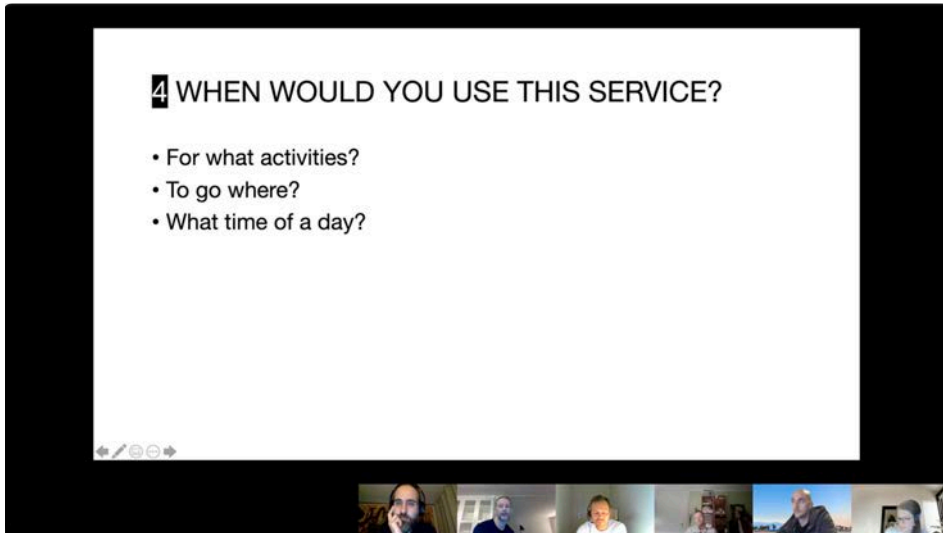
2 **Recruit small groups with relevant local relationships**

Following a snowball principle, participants from interviews and drive-alongs were invited to recruit other people from their areas with whom they shared neighbourhoods, activities or other connections. In the workshops, participants then discussed with a group of their friends, neighbours, class- or teammates how they would go about organising a shared mobility service. This allowed us to situate the co-design process within existing relationships and shared experience and grounded imaginary situations in real-life social contexts. Having participated before, questions could be tailored in part to their contexts.

ENGAGEMENTS

3 Co-design future mobilities

Complementing previous ethnographic steps, these workshops allowed us to gain more insights into the respective areas and the specific challenges regarding everyday mobility. But they especially provided an opportunity for participants to discuss what their mobilities could look like in a future made tangible through concrete relationships, spaces and moments of everyday life.



4 Build multi-step collaborative (online) workshops

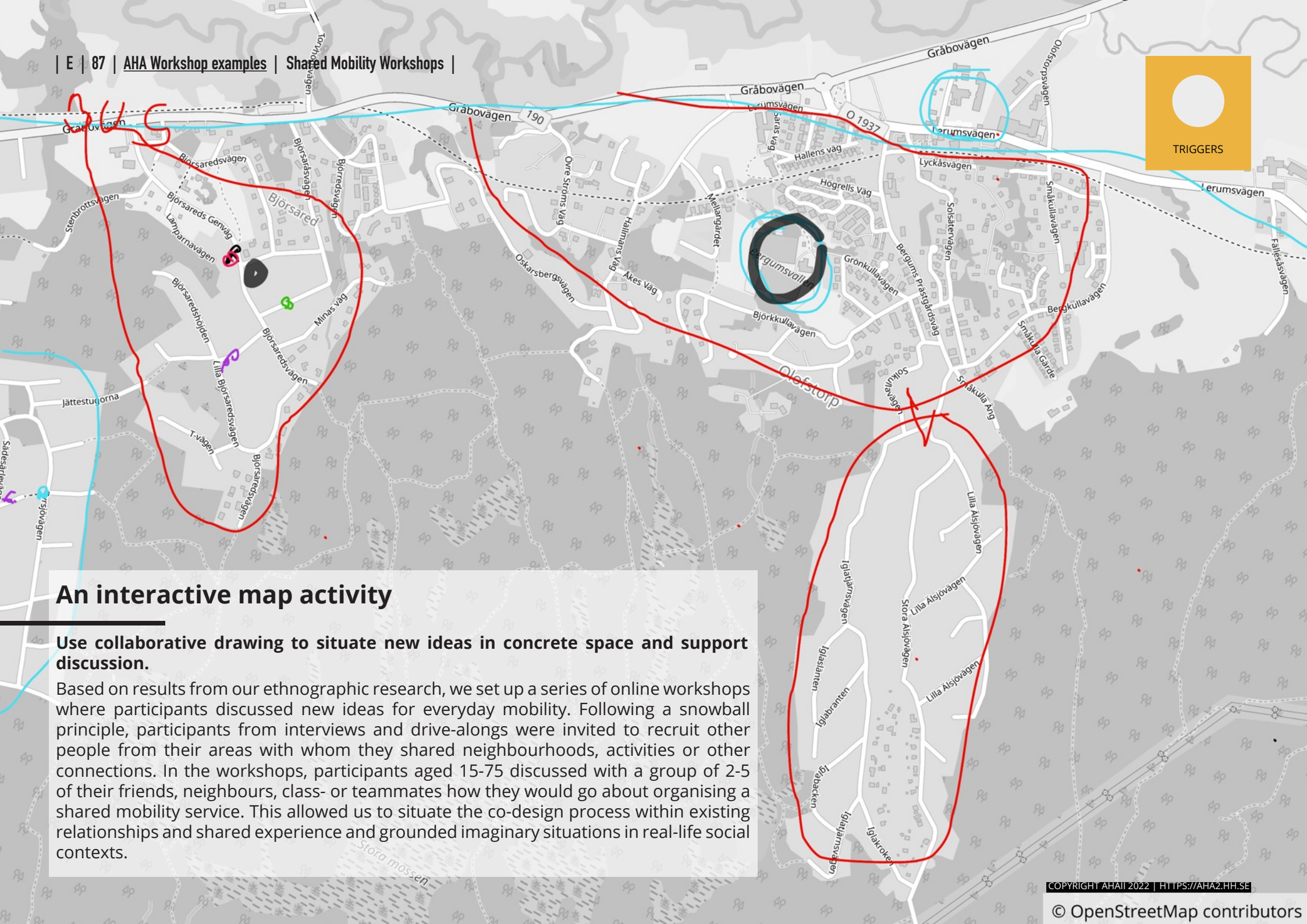
Our workshops were hosted online with groups of 2-6 people. Two to three researchers would be there to facilitate, introduce new prompts and take notes of the discussions. Workshops were organised into four steps: an Initial Discussion where participants explained their relationship, discussed about current mobility and sharing practises and common needs/problems, an SAV Prompt that introduced the idea of being provided with a shareable, possibly autonomous vehicle, a Map activity where participants could draw together on a map of their area, and a moment of Iterating ideas using emerging themes.

TRIGGERS

An initial visual prompt and story

Use images as prompts to complement an initial prompt given to participants to start thinking about ways of using, organising and sharing an Autonomous Vehicle System in their own neighbourhood.

In our workshops, images of autonomous vehicles and cars were used in potential WoZ experiments to prompt reflections about specific qualities (shared) vehicles of the future would need to have, if an autonomous service would be possible and what would be needed in order to trust or appreciate the automation. The images reflected technology-driven imaginaries of futures with no privately owned cars in order to spark discussion.



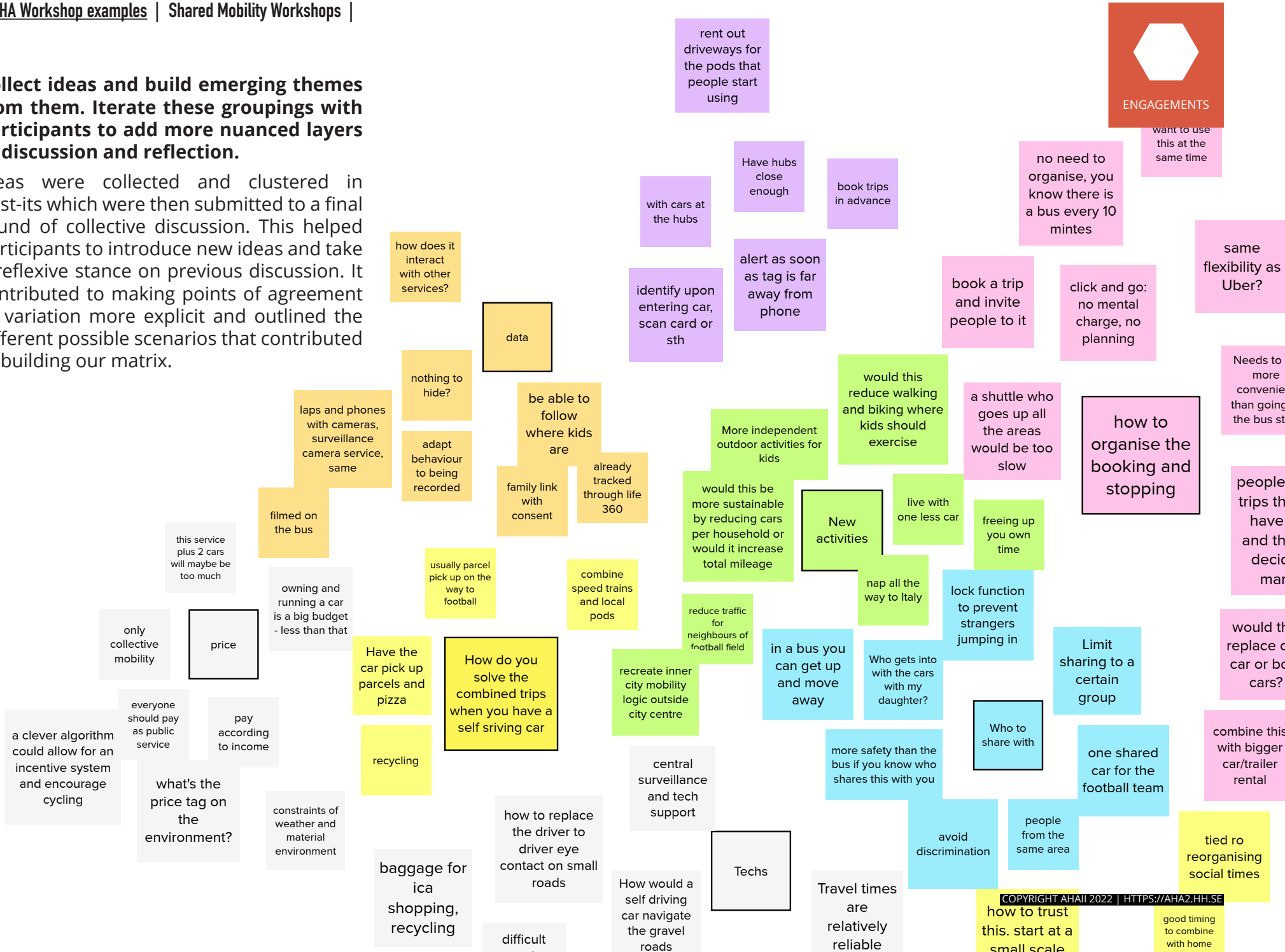
An interactive map activity

Use collaborative drawing to situate new ideas in concrete space and support discussion.

Based on results from our ethnographic research, we set up a series of online workshops where participants discussed new ideas for everyday mobility. Following a snowball principle, participants from interviews and drive-alongs were invited to recruit other people from their areas with whom they shared neighbourhoods, activities or other connections. In the workshops, participants aged 15-75 discussed with a group of 2-5 of their friends, neighbours, class- or teammates how they would go about organising a shared mobility service. This allowed us to situate the co-design process within existing relationships and shared experience and grounded imaginary situations in real-life social contexts.

5 Collect ideas and build emerging themes from them. Iterate these groupings with participants to add more nuanced layers of discussion and reflection.

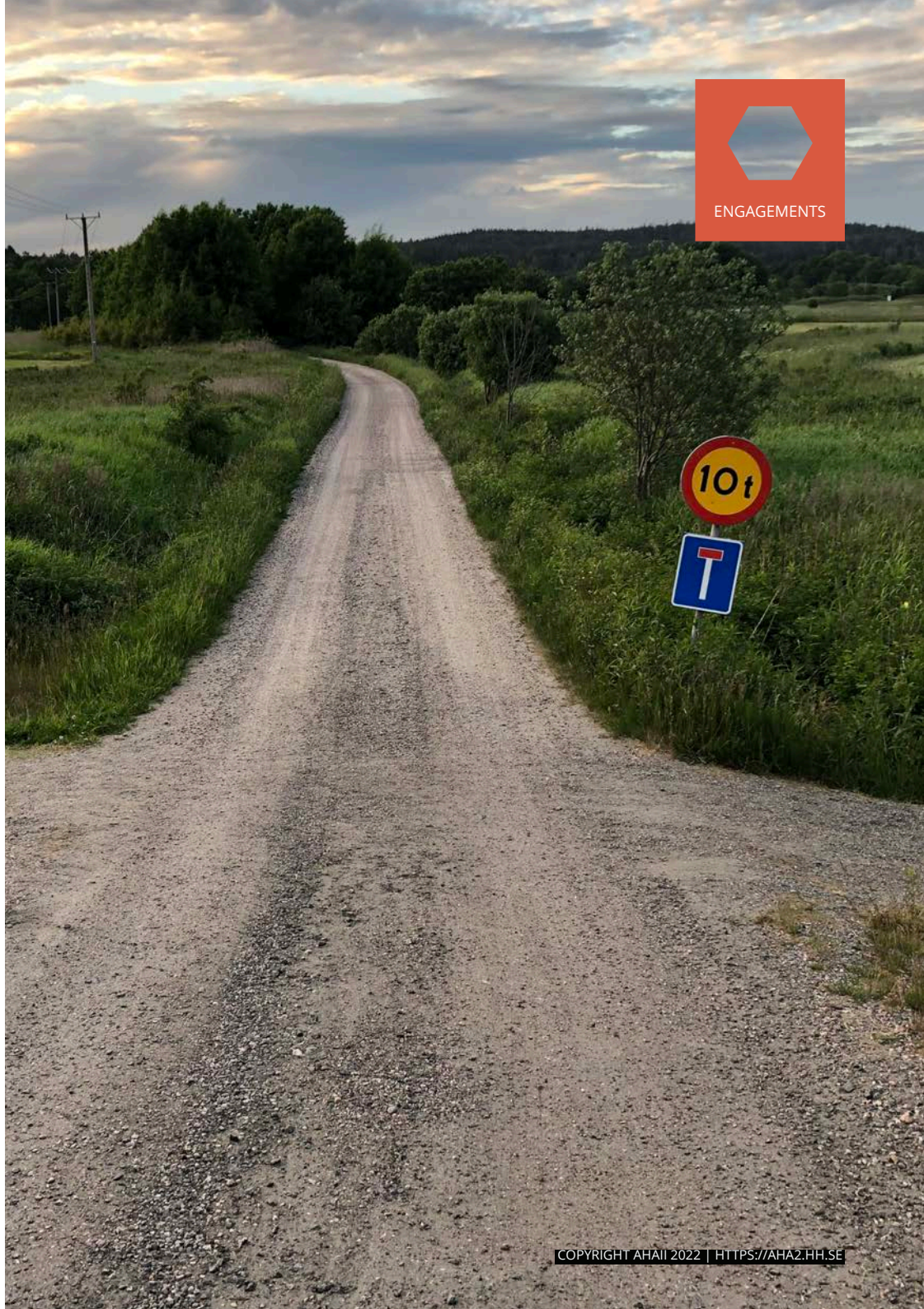
Ideas were collected and clustered in post-its which were then submitted to a final round of collective discussion. This helped participants to introduce new ideas and take a reflexive stance on previous discussion. It contributed to making points of agreement or variation more explicit and outlined the different possible scenarios that contributed to building our matrix.



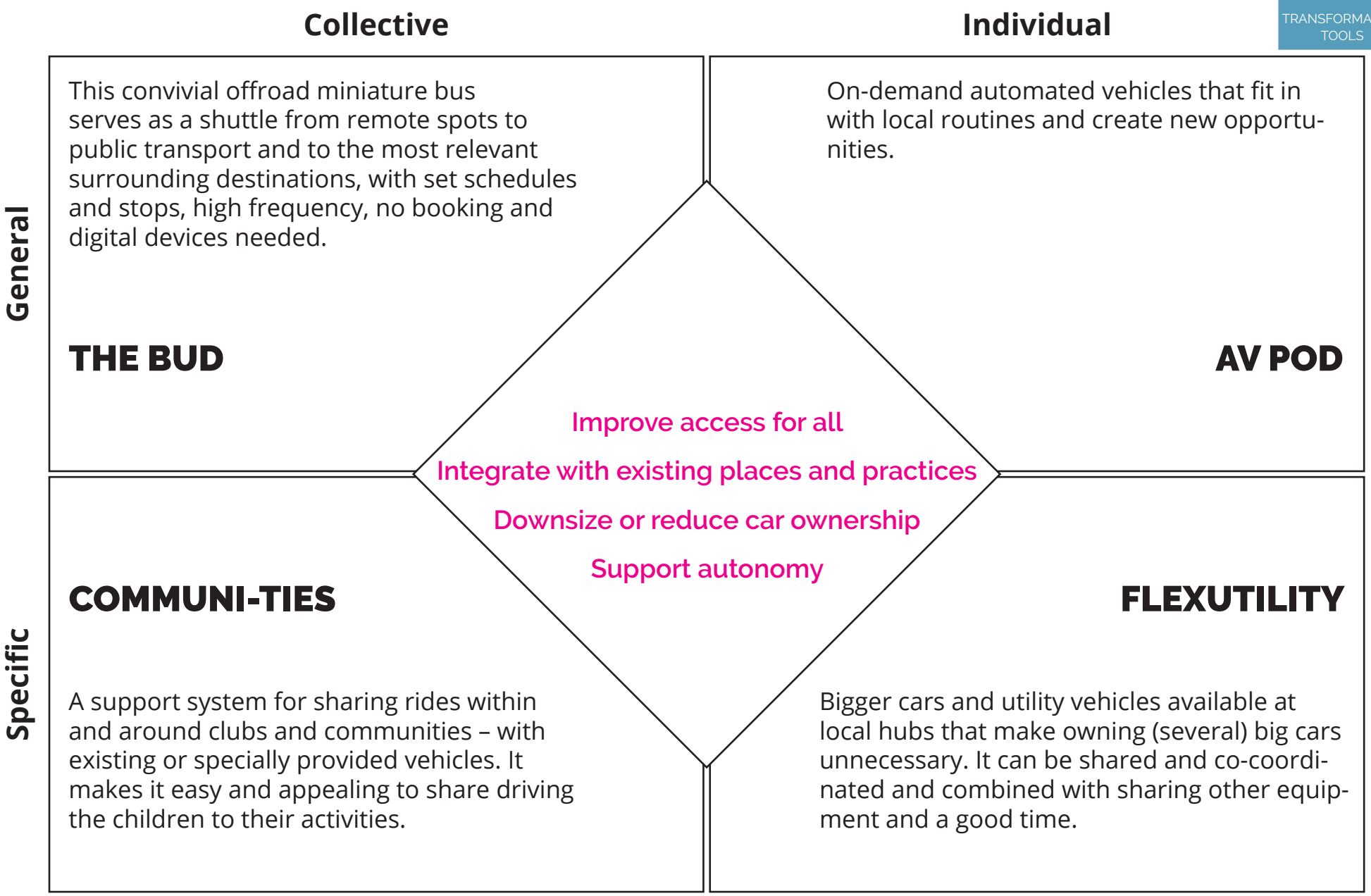
Mobility Typologies

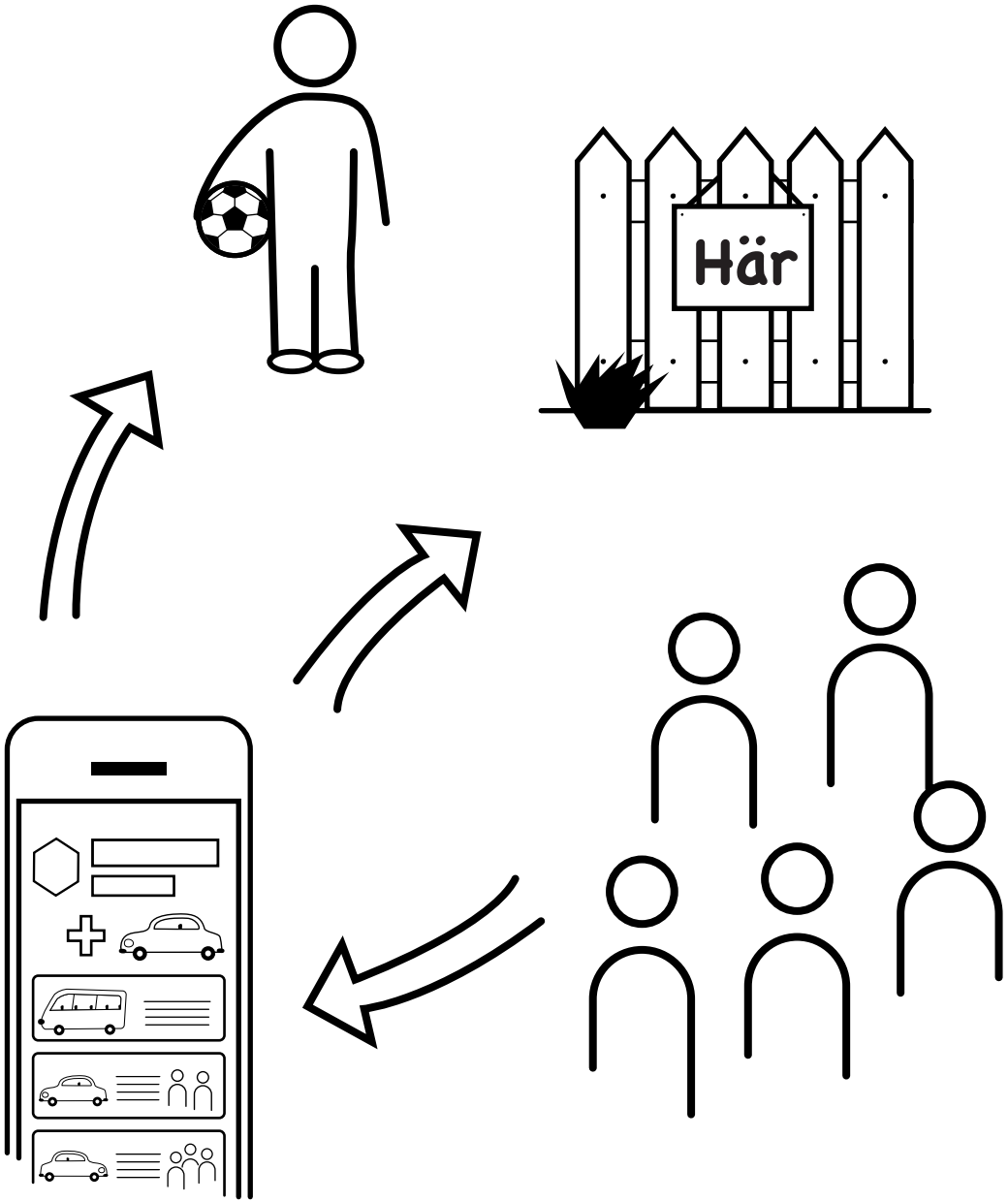
6 Create a typology of diverging visions of mobility and build narratives of desirable mobility futures based on the emerging themes across workshops.

We grouped the ideas drawn from the co-design workshops about potential solutions for future everyday mobility into 4 main categories. From the demands, desires and questions that came out of the workshops, we created a typology of four main ideas for local mobility models. All four share a series of common objectives that were recurrent throughout the discussions - fulfilling central mobility desires in an inclusive and accessible way. They are differentiated by whether they are primarily an individually used service or focused on shared collective use and whether they are a generalist mobility service or focused on specific use cases and contexts. The utility of this tool is two-fold: 1) it reflects the practices, needs and visions of (future) mobility in the locally situated context. 2) The ideal-types that are created can then be used for further imagining of future mobility solutions. We used them as inspiration for speculative narratives built with other stakeholders. That makes the typology a useful tool to visualise and share mobility imaginaries and to connect different iterations in a co-design process.



TRANSFORMATION TOOLS

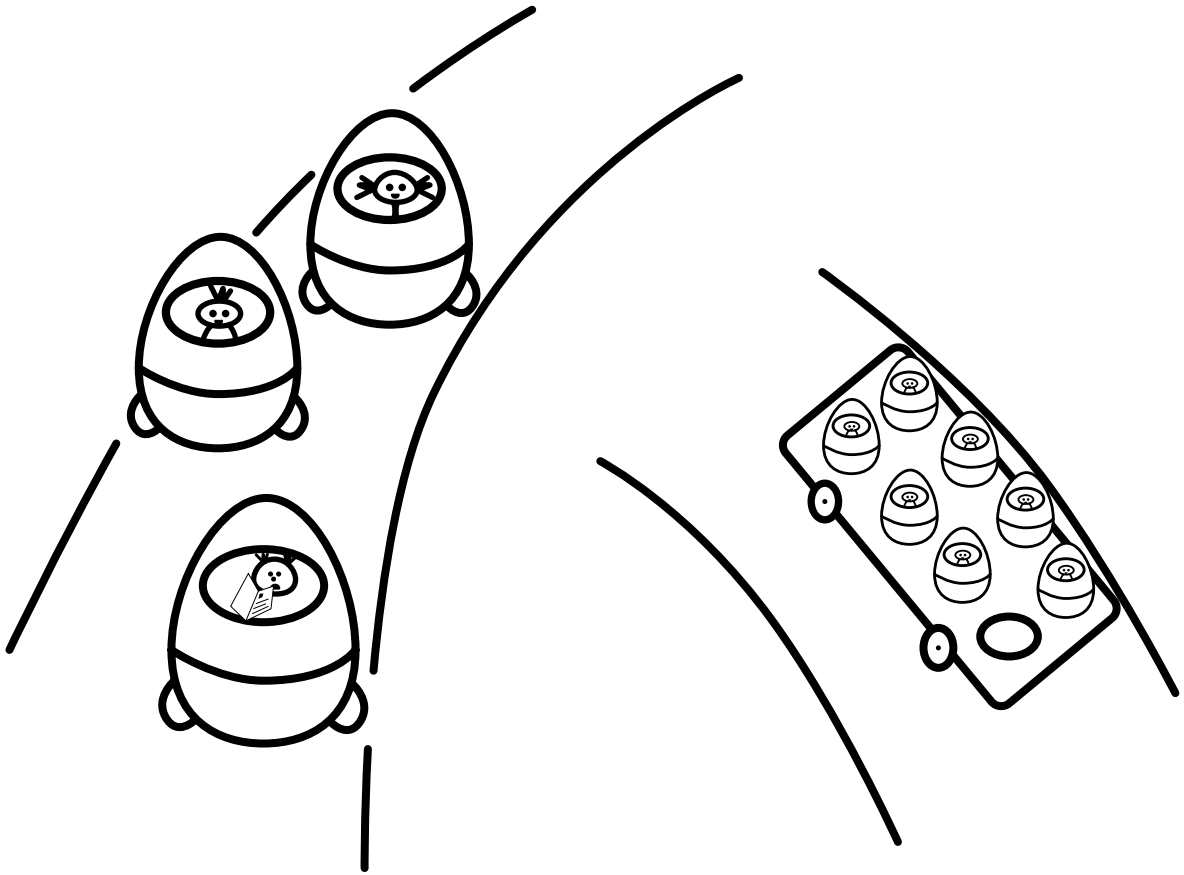




Communi-ties

TRANSFORMATION TOOLS

Communi-ties facilitates existing sharing practices either with existing vehicles and transport options or with specially provided vehicles. It is a support system that helps to organize driving children and other more dependent users, but also to coordinate carpooling for adults to specific activities. The goal is to make existing sharing practices more inclusive and foster community building in the area. Communi-ties makes driving kids from the same area to their activities and school more systematic as well as easier and more efficient for the parents. It supports the football club, church or neighborhood groups in organizing shared trips for their members and incites them to welcome others to join. Its collaborative organization is accessible for the youngest and eldest alike, with or without digital media. It integrates with platforms e.g. Laget that are already being used by the people in the area and uses pickup points that are being used or are decided on by participants. It provides the opportunity to extend the time together beyond the activities themselves while also reducing overall vehicle miles driven and reducing the weight of coordination which, today, is carried by some more than others and keeps people from sharing as much as they would like.



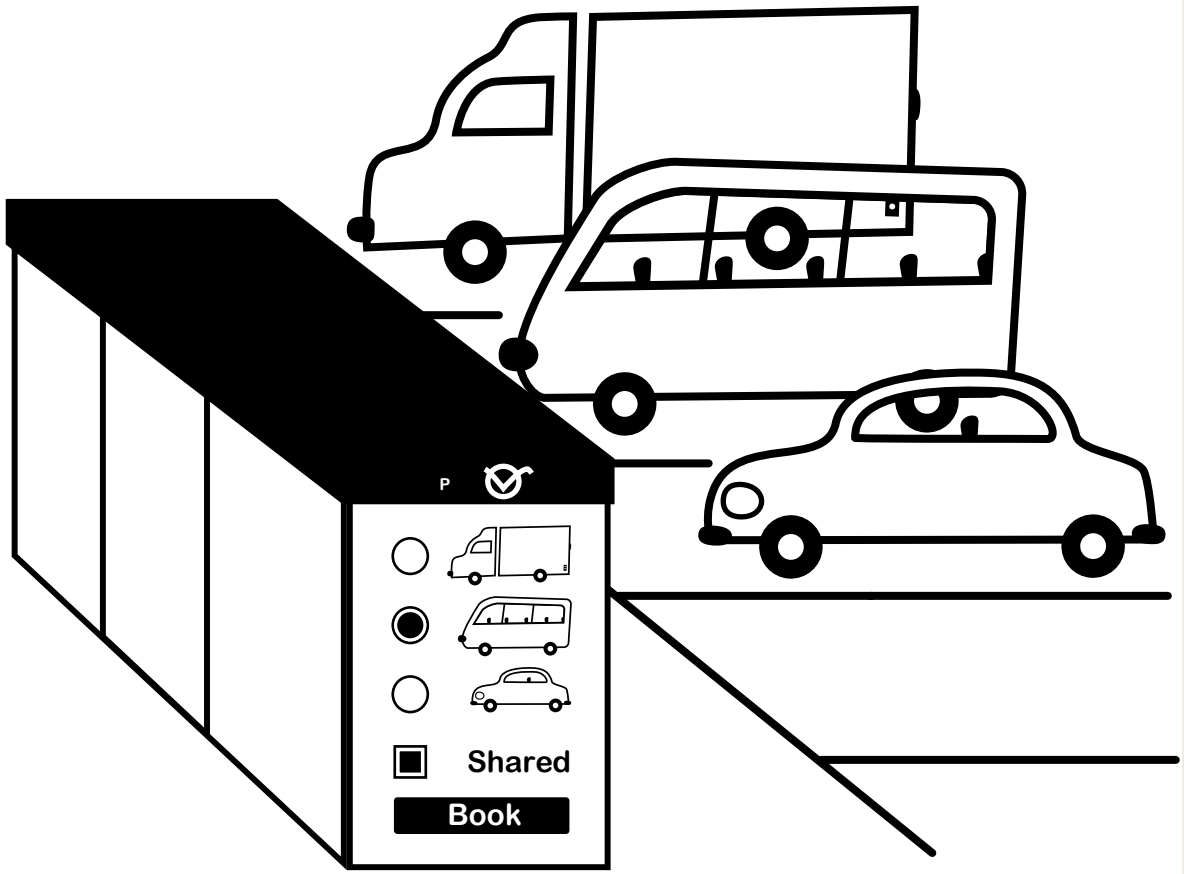
AV Pod

TRANSFORMATION TOOLS

This is an autonomous on-demand vehicle. It can be ordered through a website or an app as well as through a push of a button at a relevant pickup point or bus stop. Pricing for this service depends on the convenience and exceptionality (being picked up at home for a party vs at an area hub to commute). For this service to replace the flexibility of a privately owned car it has to be readily available (e.g. when a class gets cancelled, parents can send the pod to pick up the children). It needs to be better, fairer, more sustainable, and more available than existing ride-hail services.

Sharing a smaller, more intimate space in a car-like vehicle with strangers is met with hesitation, more so than for city buses that offer transparency of public space. It is perceived as more of risk than the AV technology itself. Sharing could be adapted accordingly with the possibility to make trips either open or exclusive or limited to predefined groups. Users could create groups based on destinations and residence like “12yr old boy football team from Björsared” and send automatic invites to exclusive trips. Safety concerns may be addressed with security systems e.g. identification of users upon entry, a possibility to monitor and backtrack who is with whom and in which vehicle, the option to connect to a real person responsible for the transport system, or CCTV. This in turn raises questions of data security, privacy or equal access.

Challenges for automation lie in the environment with low visibility, difficult surfaces, unmapped obstructions or paths, shared spaces with pedestrian, cyclists and moped, and informal rules of sharing narrow roads. Challenges of a pod are how to handle peak times, to encourage sociability and to combine with rather than replace public transport and active mobilities - to avoid reproducing or accentuating the issues that exist with privately owned cars.



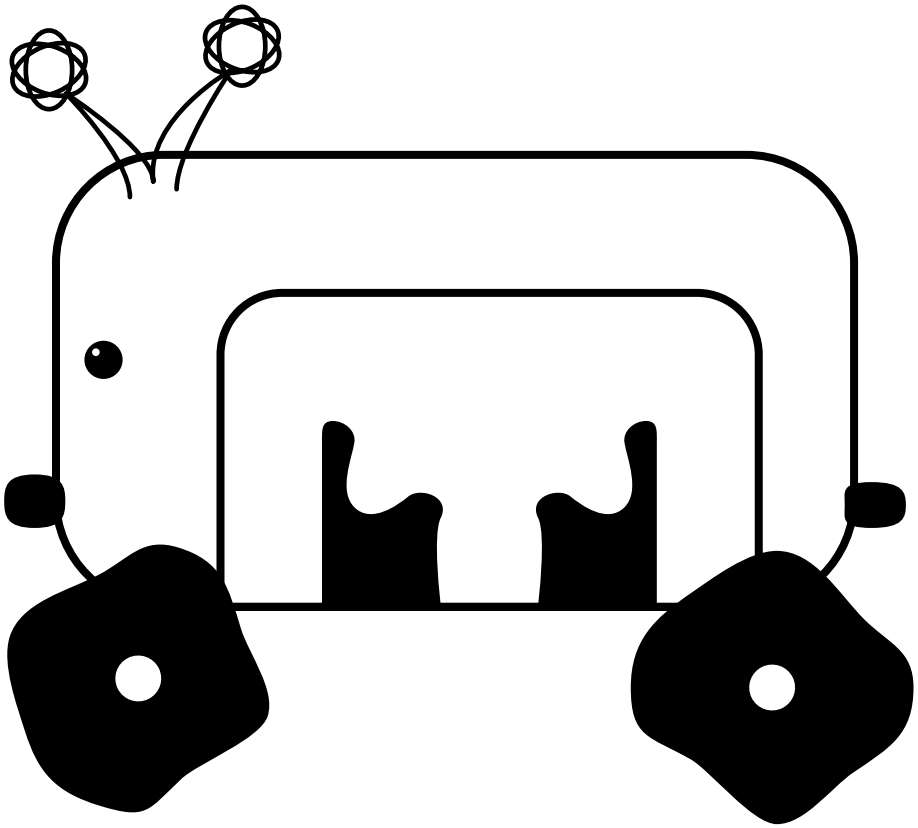
Flexutilities

TRANSFORMATION TOOLS

There is a choice of larger cars or utility vehicles available for flexible rental. ‘If I had access to a bigger car to go to the summer house for example maybe I could have a smaller car’.

Availability of a car to go to the boat on the weekends, to transport material to the recycling station, to transport larger numbers of people allows for residents to downsize to a smaller car or to improve access for those who have no car or no second car in their household. Vehicles should be multi purpose ‘I mean, if I were to be going into such a small thing that you showed, maybe, all fresh and new, and everybody would just look at all the dirt I would bring... I don’t know’.

Vehicles could be attached to the most prominent area hubs to allow for multi-modality and combination with other activities. As the service is used more punctually and for specific activities, it is more acceptable to book it a little more in advance and to access it a little further from one’s residence - this level of convenience also should be in proportion to cost. Could this be a subscription-based service? What could possible options be for sharing bookings with others? How could this service relate to sharing things other than vehicles?



The Bud

TRANSFORMATION TOOLS

This is a regular shuttle that connects the different housing clusters to the existing transit system - even for people who live far out in the fields or on top of the hill. It has a fixed, regular schedule with a good frequency - no booking, no planning. If you miss one bus you know you can catch the next one in reasonable time. The schedule is made available in an easy to understand non-digital format. This makes it easy to use for older residents and children. There are enough designated stops in each cluster to make them easy to reach even with challenged mobility. Parents feel comfortable letting their children take the bus by themselves.

Access to the vehicle is adapted to limited mobility. The Bud not only helps bridging the first mile, it helps it be the social space that it is: it feels like a public space inside to enhance safety but intimate enough to stimulate neighbourly conversation. A human driver would add safety, flexibility and conviviality. How can this system help to connect to more destinations - like the nature reserve in Bergum-Gunnilse? How can it connect beyond the centre-periphery model from Gunnilse to Lerum, for example.

The pod needs to also be big enough to make it feel “public” but small and comfortable enough to encourage sociability. It needs to facilitate independent use for children, elderly, people with impaired vision, hearing, mobility, and orientation. Also, it allows for transporting bikes, scooters, wheelchairs, pets. It’s off-road properties let it navigate the narrow roads of Bergum-Gunnilse and paths into wilderness.

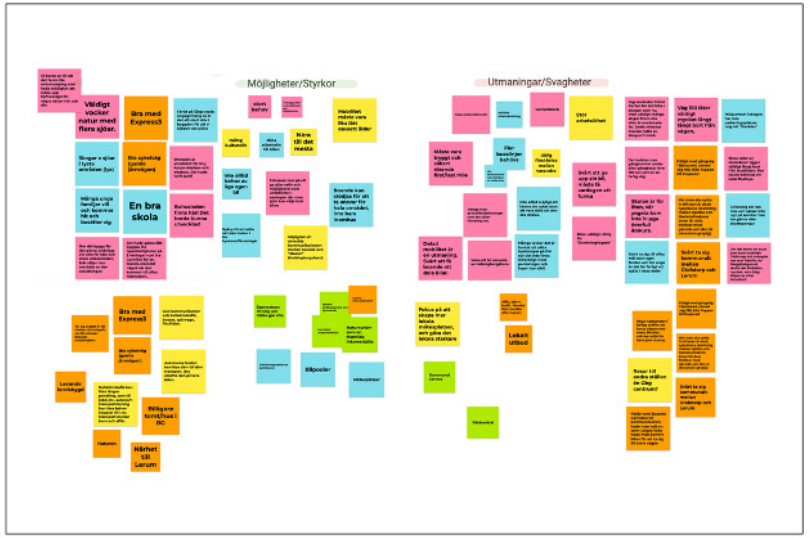
FUTURE MOBILITY WORKSHOPS

Futurizing and ideating future services are challenging in the future mobility context given all the uncertainties (e.g. modalities, city planning, sustainability challenges) that might affect our everyday mobility when introducing new services. To tackle this challenge, we decided to create a workshop series where we focused on dreams and visions of the far future together with citizens in order to explore wants and needs.

Dreaming of the future allowed us to bypass some of the challenges introduced when thinking about services that should be able to be realized right now while creating space for citizens to dream up scenarios of ideal futures (or nightmares). The scenarios we created together with the citizens enabled us to explore what really matters for people concerning mobility services and what creates value. We also used the scenarios from the workshops to create trigger material such as the “vignettes of the future” that represent visions of future mobility services and transformation tools like the Common Ground Game that can be used to anchor the ideation and development of mobility services in social value.

1 Customizing the workshop format

The future workshop is a generative design method that can be utilized to solve complex problems by “workshopping” future visions and plotting a course to get there. Future workshops as a method originate from the 1970:s as a way to tackle challenging social problems. In its original form, as proposed by Robert Jungk, Ruediger Lutz and Norbert R. Muellert it revolves around the four phases of preparation, critique, fantasy, and implementation. During our work within AHA II, we took inspiration from this method and tailored it to the unique needs of the project when designing our Future Mobility Workshops.



2 Focusing on critique and fantasy

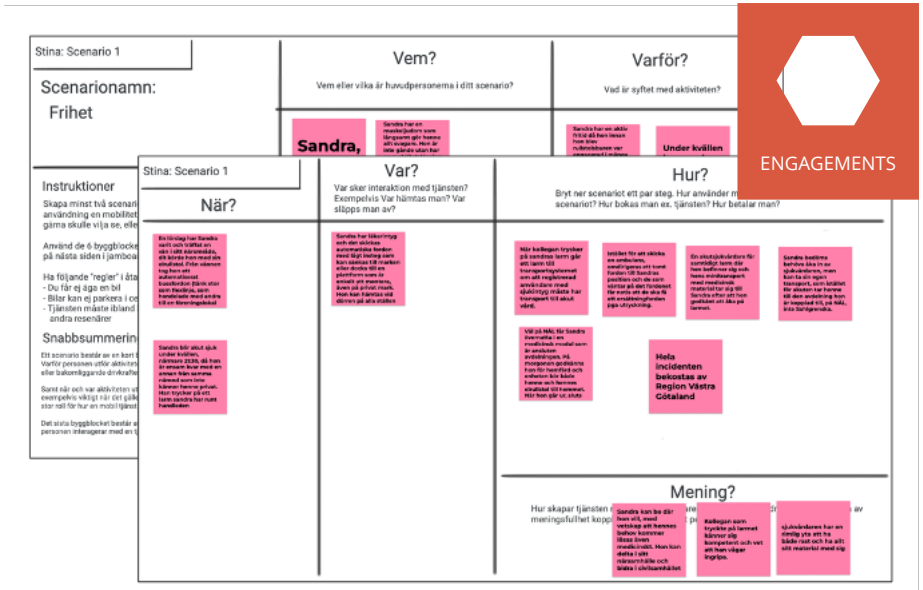
To provide room for participants to get to know each other and for the facilitator to get a feel for the local neighborhood and community we decided to design the workshop around a critique phase and fantasy phase. Limiting yourselves to these two areas also allowed us to keep the workshop to a reasonable length of 2 hours. During these 2 hours, we spent a third of the time discussing the strength and weaknesses of the local areas (e.g. Drottninghög and Bergum Gunnilse) with citizens in order to build common ground. The remainder of the workshop explored utopian dreams with citizens, where technology enriches everyday life and provides opportunities and value. However, we also explored quite dystopian futures, where technology decreases both physical and social activity detrimentally

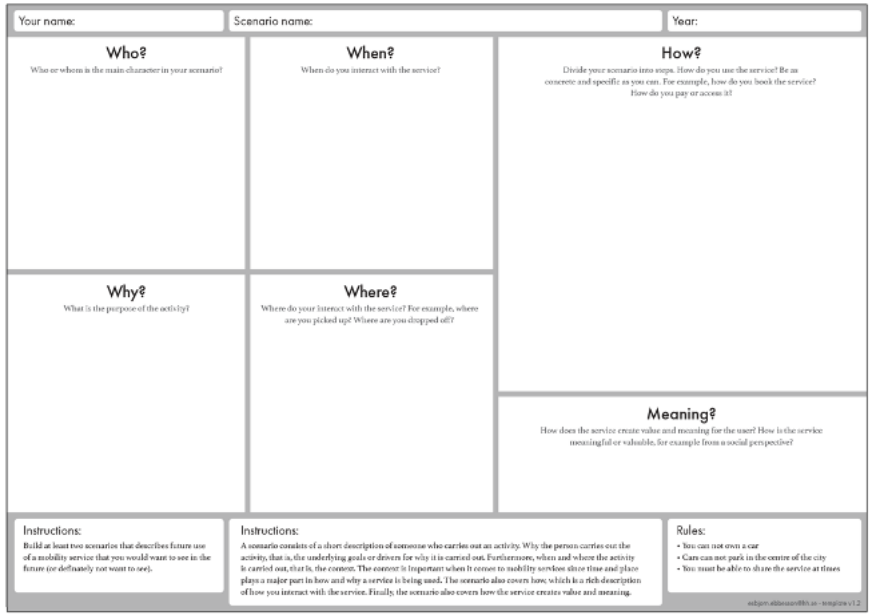
3 Structuring the workshop

The workshop consisted of a presentation phase (20 min), where all participants presented themselves, and we also briefly presented the AHA II project and the aim of the workshop. This was followed by the critique phase (25 min) and a trigger-phase and a brief discussion of future mobility (15 min), the examples we chose as triggers were examples of future mobility services as envisioned by automotive actors, and technology companies 20-30 years into the future. The remaining hour was spent co-designing future scenarios.

4 Dreamcatching

The dreams and visions were captured through scenario building, along with the citizens. Scenario building is a method that allows people with diverse backgrounds to create narratives that describe interactions with a service (Carroll, 2000). The main benefit of using scenario building was that the method provided a scaffolding for organizing and talking about visions between people with diverse backgrounds and levels of expertise. In order to facilitate structuring the visions into a scenario, we provided the participants with common building blocks such as how, when, why, who and what in order to build a narrative scenario structure. However, we also added the building block “meaning”, in order to specifically steer discussions towards explicitly stating how the use of future technology, can create social value or meaning for the characters in the scenario.





Your name:

Scenario name:

Year:

Who?

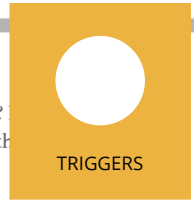
Who or whom is the main character in your scenario?

When?

When do you interact with the service?

How?

Divide your scenario into steps. How do you use the service? concrete and specific as you can. For example, how do you book th How do you pay or access it?



Why?

What is the purpose of the activity?

Where?

Where do your interact with the service? For example, where are you picked up? Where are you dropped off?

Meaning?

How does the service create value and meaning for the user? How is the service meaningful or valuable, for example from a social perspective?

Instructions:

Build at least two scenarios that describes future use of a mobility service that you would want to see in the future (or definately not want to see).

Instructions:

A scenario consists of a short description of someone who carries out an activity. Why the person carries out the activity, that is, the underlying goals or drivers for why it is carried out. Furthermore, when and where the activity is carried out, that is, the context. The context is important when it comes to mobility services since time and place plays a major part in how and why a service is being used. The scenario also covers how, which is a rich description of how you interact with the service. Finally, the scenario also covers how the service creates value and meaning.

Rules:

- You can not own a car
- Cars can not park in the centre of the city
- You must be able to share the service at times

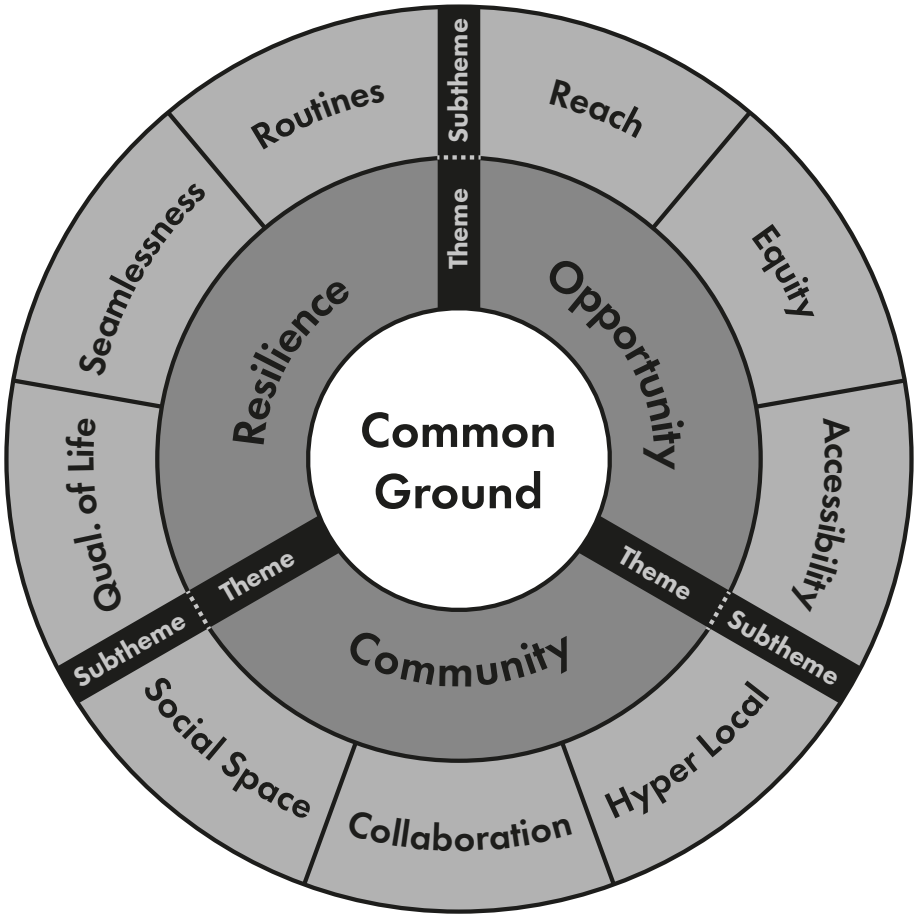
5 Dream sharing

We started out by creating a joint scenario together with the whole group in order to show and explain the process and scenario building blocks. Then the participants started building their own scenarios individually. Most participants managed to create 2-3 scenarios with different levels of granularity. In general, more scenarios meant a lower level of details and vice versa. At the end of the workshop, each participant had the opportunity to present their scenarios, provide more context, and open up for questions from other participants.

6 Crafting Trigger material

When analyzing the scenarios that were generated by the citizens during the workshop, we identified three primary themes that resonated with the empirical material. Resilience, community, and opportunity. To make the themes more tangible, and to help capture the depth of the scenarios that were created during the workshop, we decided to create trigger material based on the workshops that could be used to spark discussion, and act as a carrier that could help tell the story of the visions that the citizens had shared.

We call this category of trigger material vignettes (see next page), as they provide a snapshot of different types of citizen-generated scenarios, which can aid in both providing examples of the three themes, and spark discussion concerning different types of social value that each vignette creates. In order to make the vignettes digestible, some of the scenarios had to be shortened.



TRIGGERS

Four Vignettes Describing Future Mobility Visions

When we selected material from the empirical findings in the future mobility workshops to act as vignettes, we focused on citizen generated visions that captured the breadth of the visions, while also providing powerful narratives that could help in communicating recurring themes in the future mobility workshops and trigger reflection and discussion.

1. Resilience and quality of life

Sandra, 57, has a gradually worsening physical condition and is currently in a wheelchair. Sandra has always been very active in the local community, sports organizations, and local politics. Sandra uses a mobility service to get around that is customized around and can be adapted for her needs concerning her physical condition and living out in the countryside. This includes adapting to her specific and current needs concerning her electric wheelchair, entering into the pod, and eventual pick-up locations; regardless of whether it is right outside her house or elsewhere.

During an evening activity at a local community organization, Sandra has a medical emergency. An acquaintance aids Sandra in contacting the mobility service, which is able to route medical personnel, equipment and a pod to Sandra's location.

The pod that is rerouted to Sandra's location is already in the local area inroute to pick-up other passengers, but given that this is an emergency the pod sends a notification to the other passengers with information of a delay and that another pod will be arriving shortly to pick them up.

After an assessment from the medical personnel at Sandra's location, the mobility service pod brings Sandra to her local hospital instead of the emergency room at the larger hospital. At the local hospital, Sandra is transferred into a medical pod. Sandra stays overnight so that her health can be monitored. In the morning, her medical pod detaches from the local hospital and brings her home to her own house out in the countryside. The medical pod, in this way, can both act as a mobility service pod and as a specialized unit at the local hospital. The whole trip is covered by Sandra's health insurance and the city's public transport.

The mobility service provides Sandra with the opportunity to continue living an active social life, where she can be engaged in the local community while still feeling safe and secure in the event of an emergency. The service, therefore, provides resilience and stability in her everyday life by making it possible to remain a resource to the local community without any additional cost to Sandra herself.

TRIGGERS

Four Vignettes Describing Future Mobility Visions

2. Revitalizing the community

Agnes, Peter and their two children want to explore the countryside together during the weekend. They make a tentative booking for a wildlife experience outside Gothenburg mid-week. The following Friday, they take regular public transport to a travel hub outside the city. At the travel hub, they pick up backpacks containing their food. A few minutes later, a terrain shuttle arrives that brings Agnes' family, together with two other families, deeper into the forest for their adventure.

During the travel, Agnes and Peter do not have an itinerary of set times, but instead have a flexible schedule for pick-up and drop-off that the mobility service works around, which makes the trip less stressful for them. What is important to Agnes and Peter is knowing for certain that within 15-20 minutes of arriving at a travel hub, that they will have a dedicated vehicle to pick them up.

The service provides an opportunity for the family to have a shared social experience together out in the countryside by providing a flexible and easy means for them to get there. Concurrently it provides an opportunity for local businesses and the community by providing new customers that would otherwise not exist due to lack of transportation to that area.

3. Opportunity of life

Robin, 33, is recently divorced. Robin has hit a rough patch in life and is currently unemployed and has shared custody of his daughter. He lives in a small house in the countryside and lives paycheck to paycheck. He has recurring foot pain, and it is good if he walks, but not too much. He is part of a work placement program, and during this week, he needs to pick-up and drop-off his daughter at daycare.

Robin uses a mobility service that is partly subsidized by the city. Since he has daycare duty this week, a pre-booked mobility service picks up and drops off his daughter. The service is fully subsidized as long as Robin sticks to his schedule. If he wants to deviate from the planned route, Robin can pay a small additional fee out of his own pocket. The mobility service enables Robin to do his work placement training based on his interests rather than what is close to him. Furthermore, the service also coordinates pick-up and drop-off of passengers that share destinations close by, giving Robin to the opportunity to socialize with potential co-workers during his ride to and from his work placement.

The subsidized mobility service creates an opportunity for Robin to engage in meaningful work placement training while also taking care of his daughter, regardless of where he lives, which might enable Robin to land a job that is attractive and meaningful to him in the future. The service supports Robin's routines while also providing flexibility for ad hoc changes.

4. Mobility leveraged social values

Anna, 75, lives in a suburban area where she has an extensive social network. She likes to walk and keep active since it is crucial both for her physical health and for social reasons.
Today she is taking her granddaughter to handball training at the local sports center. She is walking along the walkways while conversing with her granddaughter. Anna thinks that the walk provides a precious social experience for her and her granddaughter. She has noticed that they are more comfortable talking about different things when they walk next to each other, compared to when there are other people around or when they face each other on a bus, for example. During these walks, she feels that she really gets to know a different side of her granddaughter.

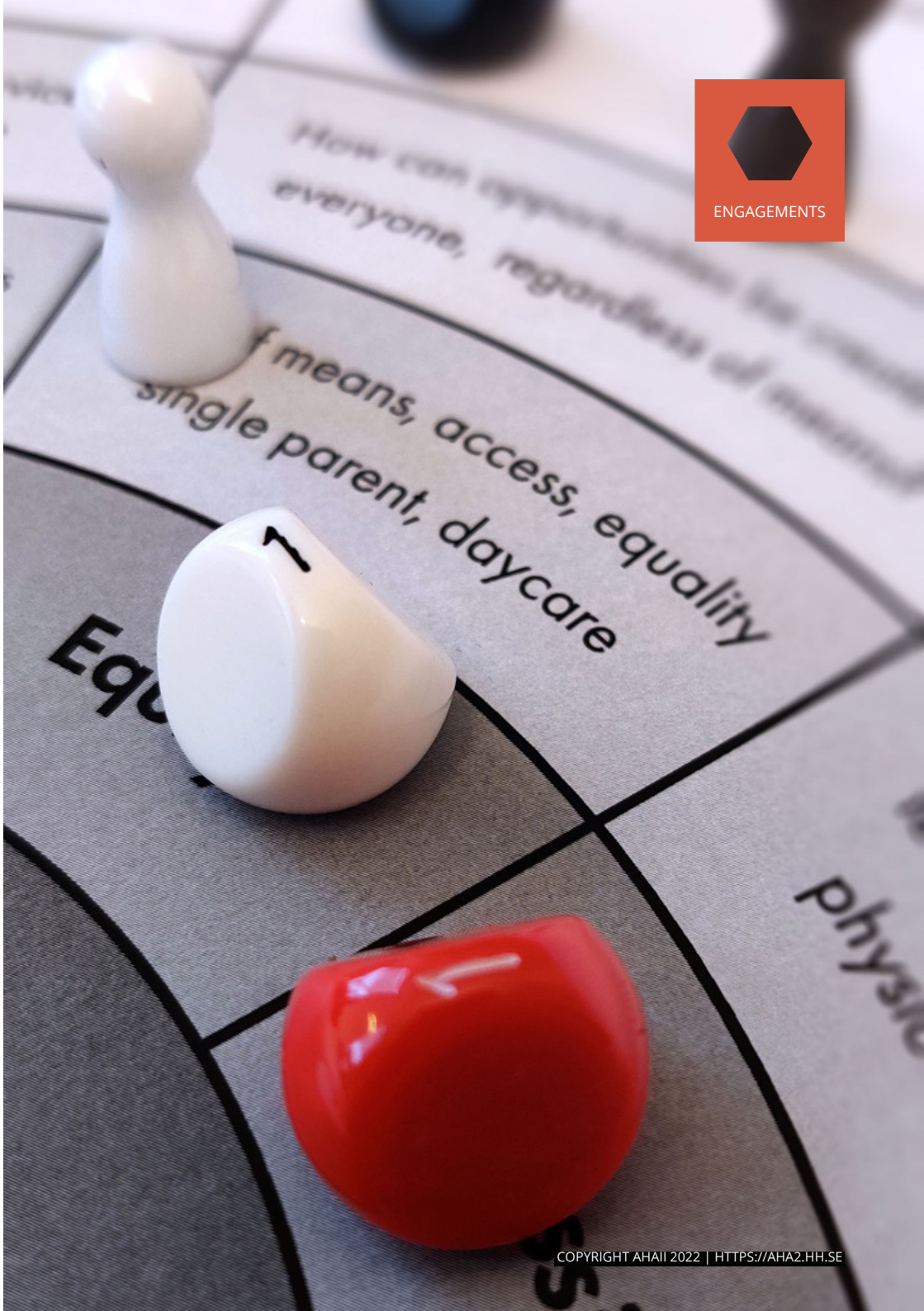
Walking together provides a social setting where Anna and her granddaughter can even interact and forge social bonds with neighbors along the way. This means of transportation works for them and gives them a unique experience of quality time and a means of interacting with each other and the people around them.

7 Crafting transformation tools

In order to make the findings more tangible and actionable, we designed a workshop method around the recurring themes of resilience, community, and opportunity called the Common Ground Game. In order to promote playfulness and exploration, we gamified certain aspects of the method to help workshop participants to break away from old patterns and ways of doing things.

The common ground game (see next page) is built around 3 recurring themes in the 21 scenarios that were generated through future mobility workshops with citizens. The three themes are distinct enough to provide an overview of the richness of the generated scenarios. However, in the same manner, as everyday life is messy and entangled, the themes are also entangled. They rarely stand alone, instead, the themes in relation to each other create a whole that is greater than the parts. In the following text, we will provide a description of each theme, and provide examples that link to the four vignettes, and, where needed use examples from scenarios that were not included in the vignettes.

The purpose of the workshop method is to help diverse sets of stakeholders to align themselves while exploring and discussing how mobility services can be designed to support social value.



TRANSFORMATION TOOLS

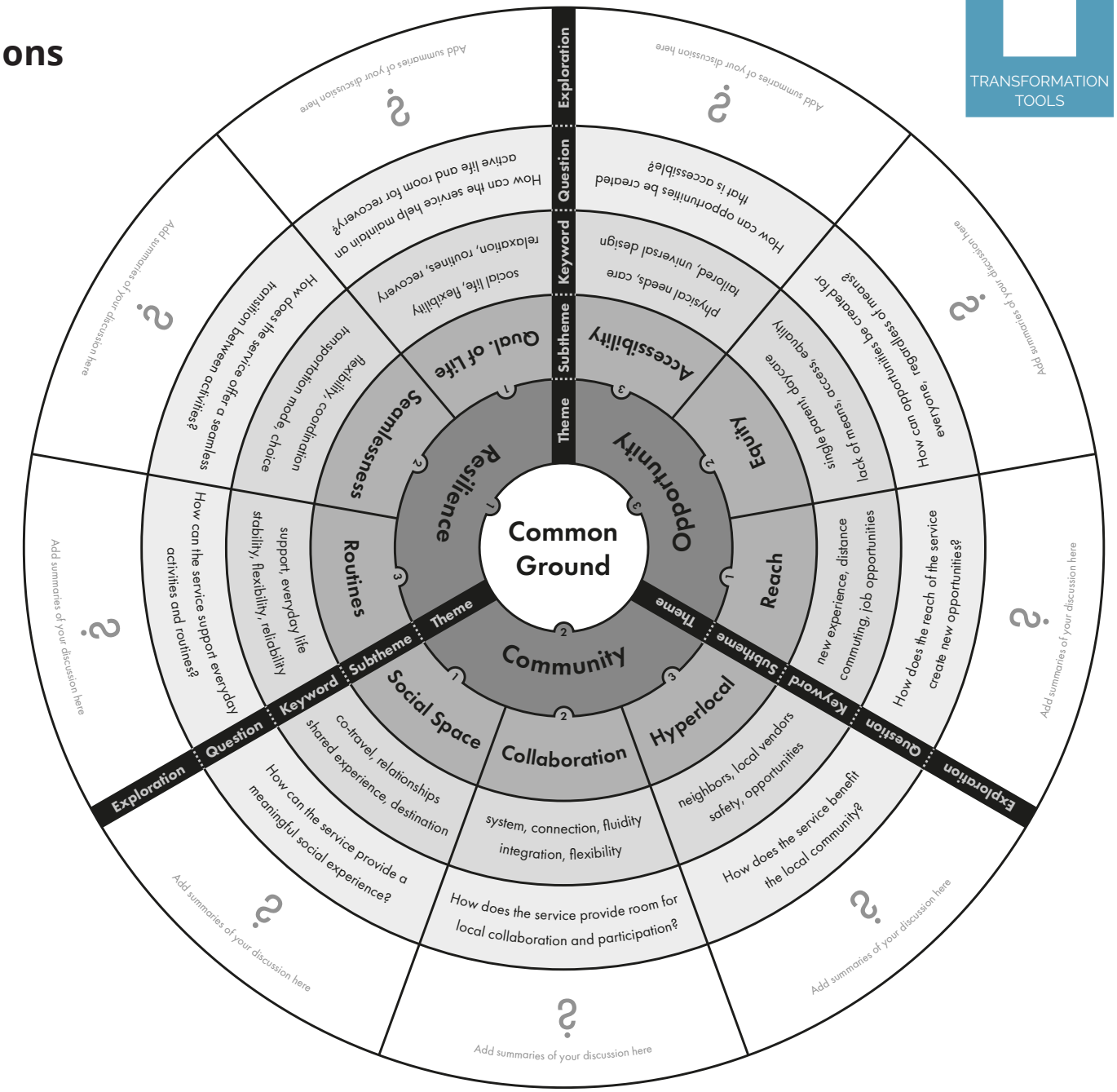
Common Ground Game instructions

1. Define the starting point of the discussion. This is important to make sure that everyone taking part in the discussion understands what the proposed context is for a future mobility solution

2. Start playing the game. You can use the game to guide the discussion in several ways. You can either start from the center and pick a theme (i.e. resilience, opportunity, or community), and discuss each sub-theme one by one, or randomize the order with a die.

3. Finalize by summarizing the main takeaways from the discussion of each theme that you think helps build common ground. List action points concerning how to continue exploration and assign who's responsible for each exploration activity.

4. Disrupt and inform your ongoing work by using the result of the discussions and the work you will do afterward to identify what you might need to re-think or re-frame in your organization/working group in terms of the planned mobility solution.



TRANSFORMATION TOOLS

Common Ground Game Theme 1: Resilience

Resilience is perceived to be the ability to cope with or bounce back from challenges. As a result of the scenarios we observed that resilience was an important aspect effecting quality of life, seamlessness, and routines.

Resilience in relation to the quality of life concerns how a service can help maintain an active lifestyle or provide time for recovery in between events. This can be illustrated by how the service enables Sandra (Vignette 1) to maintain an active life, where she can remain active in the local community, both by making it possible for Sandra to continue living in her house while also taking into account her special needs for transport, both for everyday routines and medical emergencies. Additionally, there were other scenarios where services are described to provide recovery, either during transit or by enabling people to go to destinations more easily that enables them to relax and spend time with family, which helps them to cope with everyday life (see, for example, Vignette 2).

Resilience in relation to routines. Resilience also plays a role when it comes to carrying out everyday routines to avoid frustrations when carrying out the tasks of everyday life. Resilience in routines relates to our ability to carry out mundane everyday activities such as shopping, routines concerning picking up or dropping off kids at daycare or school without the risk of interruptions or last-minute changes. This can be illustrated by how Sandra uses the mobility service to commute to her local community engagements (Vignette 1) or Robin's commute to work, which also revolves around a daycare schedule (Vignette 3). Additional examples were seen in routines concerning shopping or coordination for school drop-off and pick-up found in scenarios not illustrated in the vignettes.

Resilience in relation to seamlessness. The ability of a service to provide seamless transitions between different modes of transport also influences the resilience of a mobility service. All four of the vignettes can be used to illustrate different aspects of seamlessness.

In the first vignette, we can follow how the mobility service acts as an orchestrator that dispatches and coordinates people and vehicles to provide Sandra with aid. In the second vignette, this is illustrated by how Agnes and Peter have a flexible itinerary that is built around their activity rather than specific times. In the third vignette, seamlessness is illustrated by the ability of the mobility services to provide room for both commuting and managing pick-ups and drop-offs of Robins daughter at daycare. Finally, in the fourth scenario, seamlessness is illustrated in an everyday life scenario without a mobility service. Where interaction with friends and neighbors can flow freely during Anna's walk, demonstrating how seamlessness is an important aspect of everyday life when moving around. In other scenarios not included in the vignettes, seamlessness was illustrated by, for example, the ability to bring your bike on the bus, if weather conditions change over the day, and your plans for a bike commute to work falls flat.

Common Ground Game Theme 2: Opportunity

TRANSFORMATION TOOLS

Opportunity concerns the ability of a mobility service to either safeguard or provide new opportunities for people in their everyday lives. In the scenarios, we saw opportunity as an important aspect concerning reach, equality, and accessibility.

Opportunity in relation to reach can be illustrated by how several of the scenarios revolved around a mobility service that could be used to reach new destinations. However, it is not the destination per se that is important, but rather what the destination represents and enables the passenger to do. In the vignette describing Agnes and Peter's (Vignette 2) trip to a wildlife destination, it enables the family much-needed recovery via a fresh and new experience that they previously were not able to reach. Another example of reach can be seen in the third vignette, where the mobility service enables Robin to explore new job opportunities that previously would not have been available due to his limited reach without the mobility service. Furthermore, we can see the importance of a service's ability to help people maintain reach in the first vignette, where Sandra, who has a gradually worsening physical condition, wants to remain in reach of activities that are meaningful to both her and her local community.

Opportunity in relation to equity. During our discussions with participants in the workshops, it became evident that equality is a core concern regarding opportunity. These concerns were often brought up when it came to who would be able to use the mobility services that were described in the scenarios and how they would be financed. This theme is illustrated in both the first and the third vignette. On the one hand, we have Sandra, that through a subsidized mobility service, can continue living in her local community, where she can continue being an asset to her local community, knowing that if she needs help, she can rely on a subsidized mobility service to provide the support she needs in collaboration with her healthcare provider. On the other hand, the third vignette illustrates a more balanced approach, where Robin's commute is subsidized by the city as long as he sticks to his set itinerary. However, Robin also has the freedom and flexibility to break away from the itinerary but will pay a small fee for doing so.

Opportunity in relation to accessibility. The theme of equality is also strongly linked to accessibility since it concerns the ability of everyone to have access to the mobility service. However, whereas the discussions concerning equity primarily touched upon funds or socioeconomic situations, accessibility also considers, for example, physical or medical conditions that might require the mobility service to account for specific needs. This can be illustrated by how the mobility service in the first vignette needs to take Sandra's physical and medical needs into account. This was exemplified through having specific requirements for Sandra's pod that takes her physical limitations into account, knowing where appropriate pick-up and drop-off locations are that are wheelchair accessible and having her care facility on file in case of emergency.

Common Ground Game Theme 3: Community

TRANSFORMATION TOOLS

Community plays an important part not only during travel but also in everything that revolves around moving from one destination to another. This was illustrated by how many scenarios were concerned with the community both during transit and concerning how the service could be organized by or benefit the local community. We also identified how collaboration, social space, and the hyperlocal area became important aspects of community.

Community in relation to social space. Creating room for social interactions and the importance of social spaces was a recurring theme in many of the scenarios. This can be illustrated by how many scenarios had the goal of bringing people to destinations that allowed for social interaction, such as meeting a friend for lunch or having a relaxing shared experience in a wildlife reserve with family where you can disconnect from the stressful everyday life (vignette 3). The same idea is illustrated by the mobility services that could be organized in a way that allows for co-workers or school children to travel together, in order to open up a space for recognition and conversation where they can relax, create bonds to people in their local community and be social as they travel to shared activities. An example of this can be seen in the third vignette, where Robin's shuttle is routed in such a way that his co-workers are picked up on the same shuttle, opening a social space for conversation, allowing Robin to get to know his co-workers and potentially build friendships.

Community in relation to collaboration. It became evident during the analysis that collaboration was a key aspect concerning how the participants imagined future mobility services, ranging from micro to macro. For example, it became apparent that the micro-level mattered when it came to coordinating everyday life activities, such as shopping and daycare pick-ups and drop-offs, whereas meso and macro level collaborations became important when envisioning how more nuanced trips could be supported by a future mobility service. This level is illustrated by collaborations between different types of mobility services in order to provide seamless travel from a passengers door, to their tent in a wildlife reserve (Vignette 2), or to coordinate a passengers commute to work coupled with properly timed daycare pick-up and drop-off (Vignette 3). Some participants went as far as considering how future mobility services could create an interface between the healthcare system and the person in the scenario, which was regarded as macro-level collaboration. Common for all these aspects of collaboration is that there was value generated for all parties. In the example of Agnes and Peter's trip to the wildlife reserve (Vignette 2), the participant that created the scenario imagined how the local community close to the wildlife reserve could be reinvigorated by the influx of new people in the area by, for example, selling locally produced goods. The participant that generated the scenario described in Vignette 1 imagined a strengthened collaboration between healthcare personnel and friends of Sandra, both in terms of healthcare personnel being able to have a more flexible work situation, and friends of Sandra could feel empowered by knowing that they can rely on the mobility system to aid them in the event of an emergency.

Community in relation to the hyperlocal. Hyperlocal communities also surfaced as a theme during the analysis, as we noted that much of the interaction and coordination in the scenarios concerned friends, neighbors, and local vendors rather than strangers. This is, of course, highlighted particularly well in the fourth vignette, which describes a walk through the neighborhood with a grandmother and grandchild, but is also stressed in the other scenarios and vignettes illustrated by how the imagined mobility services often open up a social space between neighbors, school children, families and other close acquaintances. These interactions were often perceived to provide room for social interaction but also strengthen familiarity.

SPECULATIVE MOBILITY WORKSHOPS

We set up a series of online and offline workshops to discuss and debate on future mobility. We used ethnographic material from AHA catalogue and Speculative Design techniques to create speculative narratives, alternatives to current mobility visions. We used these narratives then to engage stakeholders discussions and debate around these alternatives and to reflect on their individual and collective role in the design and development of current and future mobility solutions.The workshops reulted in four speculative narratives and two sets of Friction Cards to transfer the learnings to other contexts.

1 Use ethnographic insights as basis for speculative triggers

We used our ethnographic insights from **chapter B** to organise workshops, select participants, define a design space and adapt questions to each group. We used our knowledge of the area and the friction points in everyday mobility to re-imagine current mobility narratives and design alternatives. Our insights into the local areas and communities gave detail to discussions.

2 Recruit relevant stakeholders

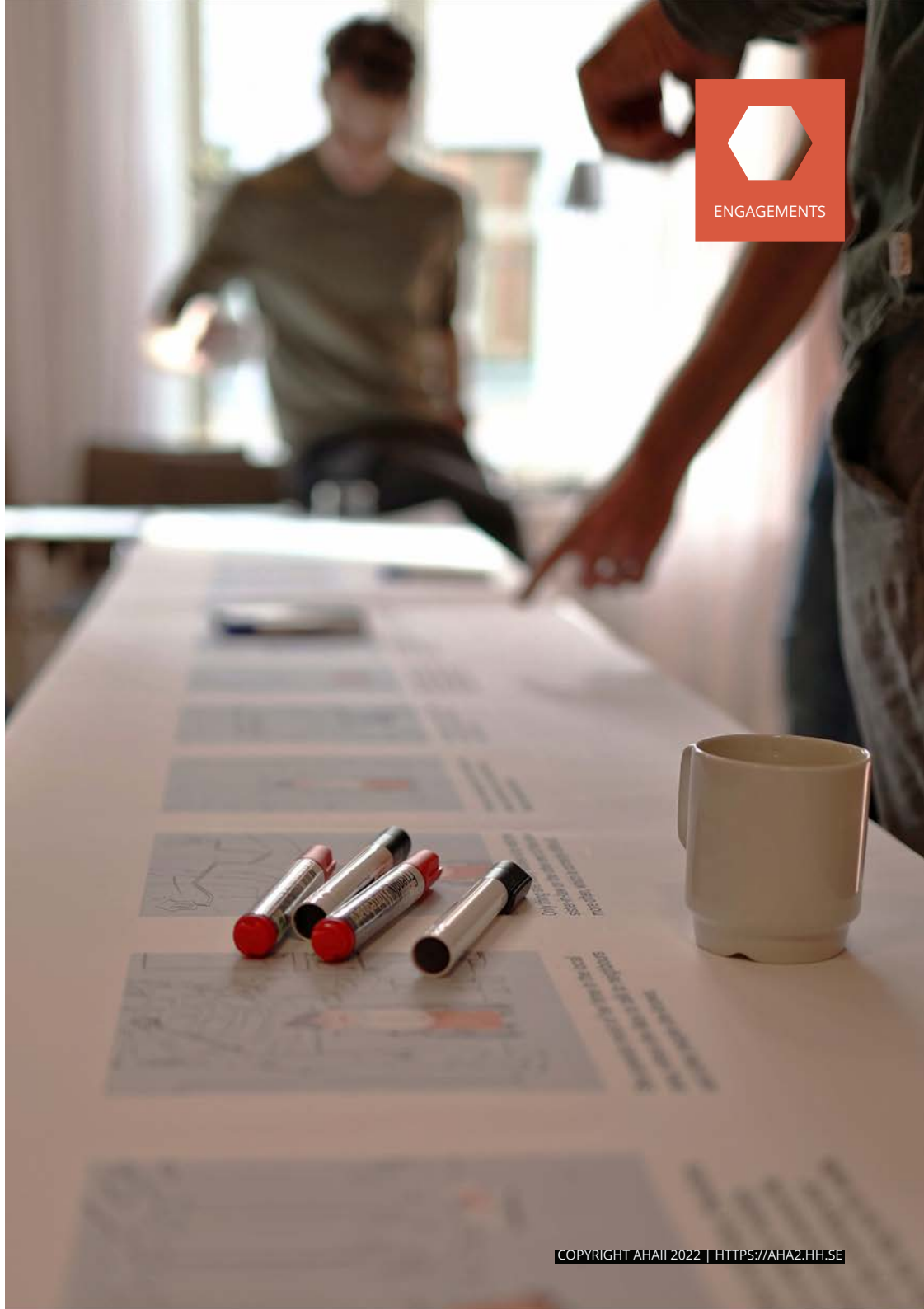
For the first online workshops, we recruited UX, service- and business designers from the automotive industry who were familiar with designing mobility solutions based on ethnographic fieldwork material. The workshops resulted in four speculative triggers for the following workshops with all the project stakeholders.

The on-site stakeholder workshops allowed us to use the speculative triggers to discuss and debate current and future mobility. Ethnographic insights from the AHA catalogue allowed us to situate the discussions within existing relationships, shared experiences, and grounded imaginary situations in real-life social contexts.

3 Create speculative triggers

First, we wanted to create speculative triggers to be used to discuss and debate around in later stakeholder workshops. For this, we held online workshops split over two days (Day 1 - 2h familiarisation, Day 2 - 2h design). Workshops hosted 3-6 participants at a time and were facilitated by two to three researchers to introduce prompts and take notes. The workshops were also screen recorded (video and audio) for documentation.

We organised the workshops into three steps: Introduction to the task and storytelling as a technique for participants to know what to expect and what we expected from them; familiarising with the ethnographic material (area, citizens and mobility imaginaries) for them to understand the local area, people living there and the different types of imagined mobility solutions that emerged from previous ethnographic studies better; and preparation for the design phase by choosing a person(s) they wanted to design for and the type of imagined mobility solution to inspire their work. During the design phase, the participants developed mobility solutions inspired by the Mobility Imaginaries (see Chapter XX), situated in an actual area to solve the issues of a citizen living there. Each workshop resulted in one speculative narrative for future mobility, a trigger to be used later in the stakeholder workshops.



4 Build multi-step stakeholder workshops

Stakeholder workshops were held on-site with 16 and more participants at a time. The workshops were facilitated by one to two researchers, with an additional one to two researchers in each workshop group to guide the discussions and provide more insights into the ethnographic material.

First, to get the participants into a similar state of mind, we used the speculative triggers developed earlier by screening a video or describing a scenario. We then split the participants into groups of 3-7 people. We asked them to work on the speculative narratives while answering a question or two we had posed. Our future mobility alternatives encouraged reflections on mobility futures and current solutions. Overall, the workshops provided ideas on refining the speculative narratives and areas to investigate further regarding future mobility.

5 Re-imagine future mobility narratives

These online and on-site workshops allowed us to gain more insights into the perspectives and challenges of the different stakeholders regarding their work on everyday mobility. Moreover, they allowed participants to discuss and debate current mobility narratives, re-imagine future ones, and discuss how to move forward with designing and developing for future mobility.

TRIGGERS

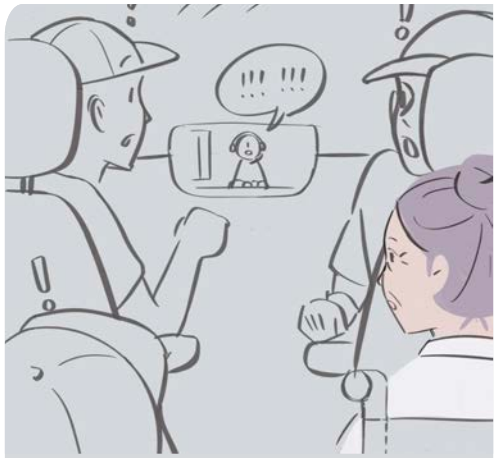
Speculative triggers

When developing the speculative triggers, we aimed for three main things:
- To communicate data grounded in people's real-life circumstances.
- To encourage the participants to engage with the material actively.
- To develop a set of speculative triggers that would prompt the re-imagination of current mobility narratives.

These triggers were created using ethnographic insights (see **chapter B**), the **Mobility Typologies** in chapter E, and the perspectives of different project stakeholders during the workshops.

EDNA'S NEW FRIEND

ST. BERNARD



CONTROLLED AUTONOMY

SEEMINGLY SEAMLESS

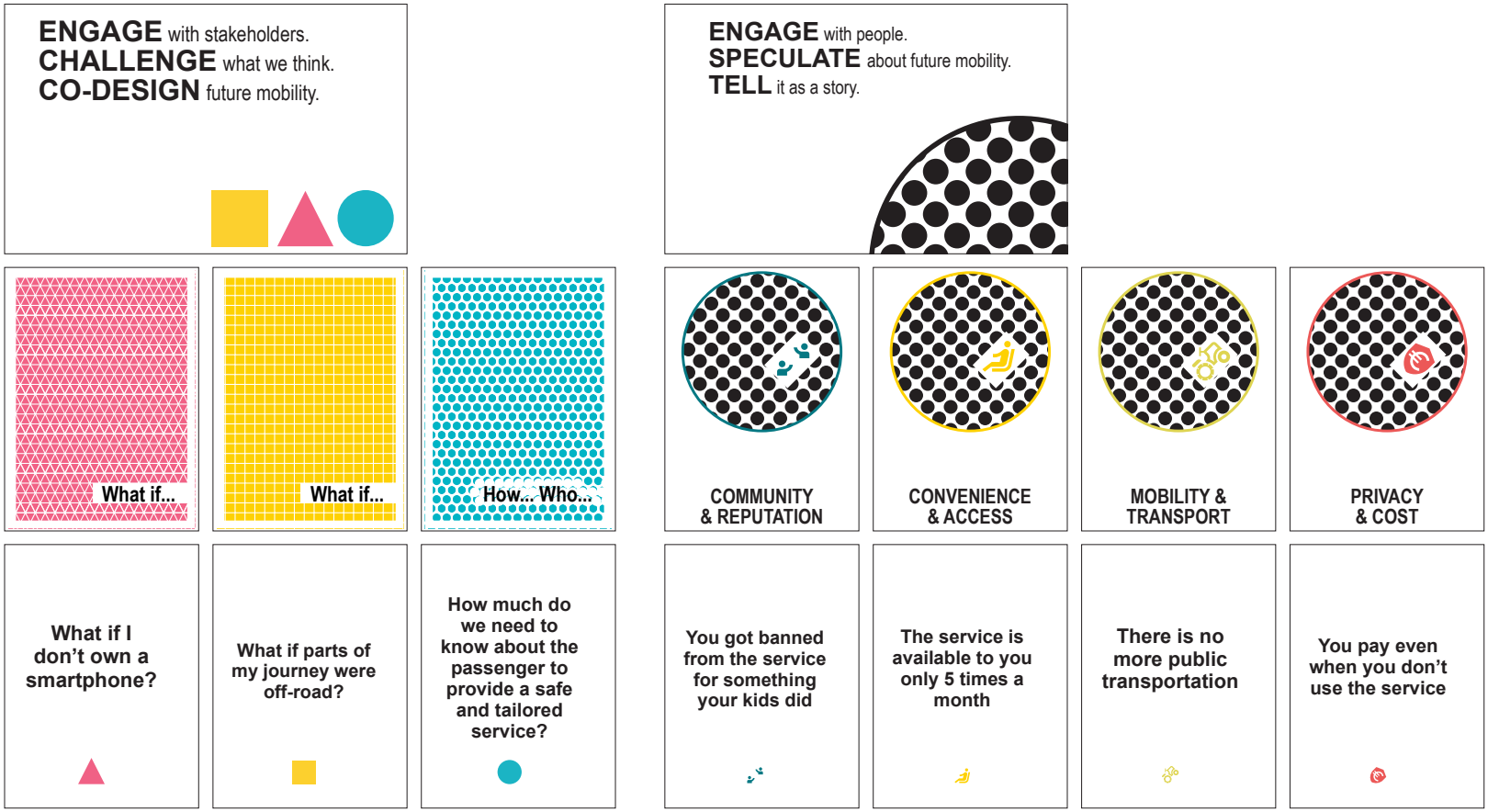
6 Create transformation tools

From the demands, desires, ideas and questions that came out of the series of workshops, we created two sets of transformation tools - Friction cards. These represent and help to communicate and apply the insights from workshops with citizens and project stakeholders to different mobility design and development activities.

TRANSFORMATION TOOLS

Friction Cards

Friction Cards can be used in mobility design activities to communicate the insights from design ethnography fieldwork and the different online and on-site workshops with citizens and project stakeholders. They are divided into two sets. One contains categories like Community & Reputation, Convenience & Access, Mobility & Transport, and Privacy & Cost of building blocks for further investigations into shared mobility in people's real-life circumstances. The other opens a stage for debate and re-imagination of current mobility solutions through *what-if*, *how*, and *who* questions. Pink *what-ifs* provoke thinking of social aspects, and yellow *what-ifs* trigger considerations of infrastructure-related factors.



F

CO-CREATING CITY GUIDELINES

CITY GUIDELINES FOR DEVELOPING FUTURE MOBILITY

With ambitions to co-create future cities based on both citizens' values and preferences, and political goals of reducing private cars, and increasing public transportation, the cities' work on long-term trajectories of sustainable and livable cities. One goal of AHAII project was to co-create guidelines on how to put these ambitions into action. Based on previous work in the AHA project, we decided to work specifically with how to *incorporate social values and multi-stakeholder collaborations into a holistic approach* to planning future mobility. In this section, we will explain how we did this and the resulting guidelines.

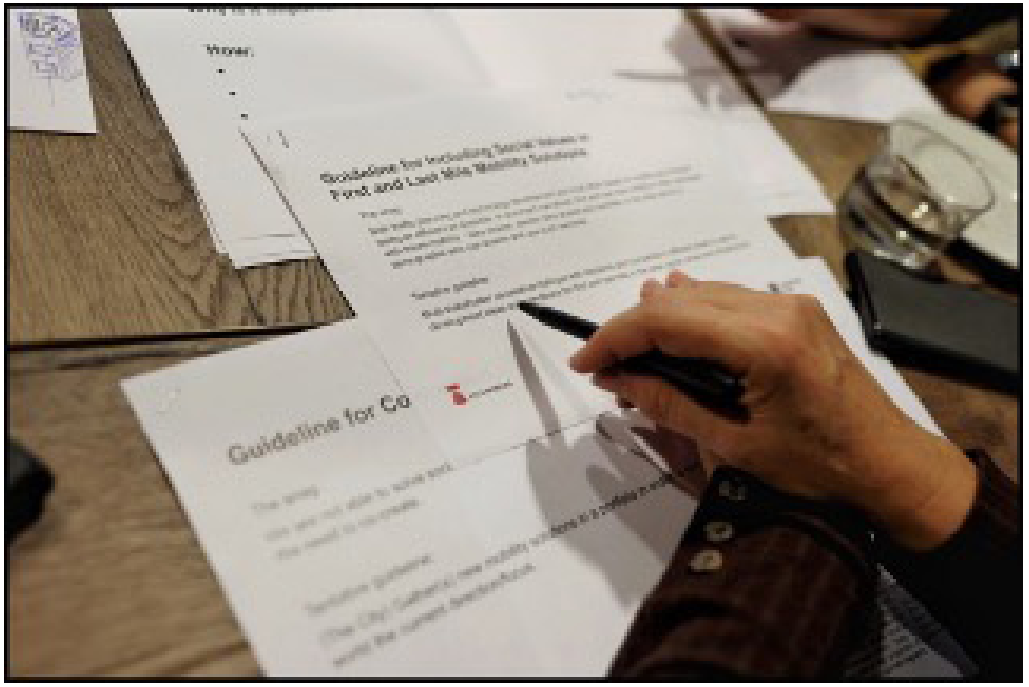
What is a guideline?

A guideline is a statement by which to determine a course of action based on insights and knowledge to create a sound practice. Guidelines may be issued by and used by any organisation (governmental or private) to make the actions of its employees or divisions more predictable, and presumably of higher quality.

Why a guideline?

- Guide design and development activities.
- Tool for evaluating existing and future solutions.

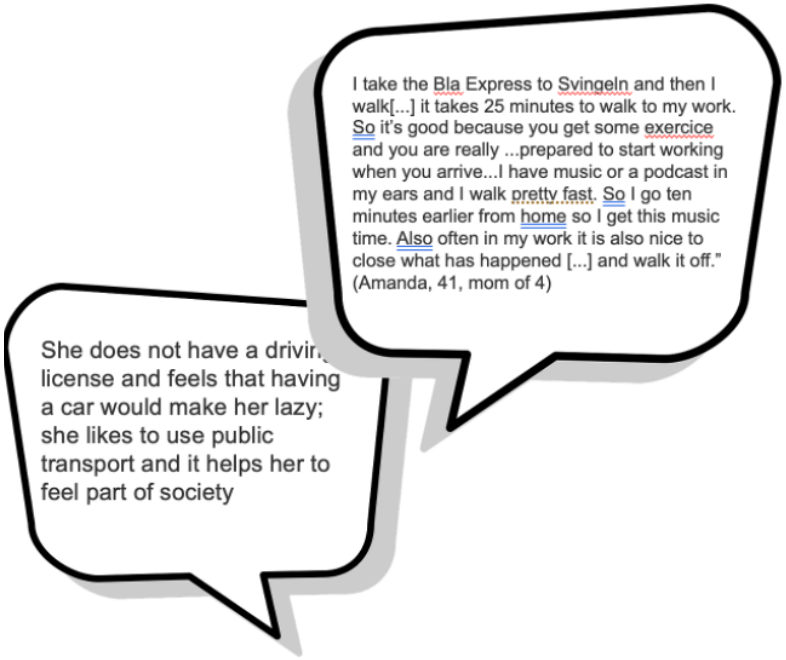
Visual notetaking of the city guidelines workshop by Louise Wester



1 Preparing for multi-stakeholder workshop

To be able to engage different stakeholder into working on city guidelines, particular problematic issues within urban planning were defined by the city representatives in the project. Those were:

1. Methods and knowledge for taking social values into account in mobility are lacking.
2. The image of a mobility hub is that it is mainly a physical place.
3. Both traffic planning and technology development are most often based on mobility and transport being as cost- and time efficient as possible and thereby neglecting social values.
4. City planners are not able to solve societal challenges on their own.



2 Creating tentative guidelines

The cities representatives then worked out tentative guidelines for each issue based on their analysis of insights from ethnography and previous co-creation workshops in the project. These materials together with key themes and stories on values were drawn from the AHA catalogue and used as basis and inspiration for the guidelines workshop.

3 Structuring the workshop

In the multi-stakeholder workshop, representatives from industry, cities, academia and public transport sat together to use the input to co-create guidelines to incorporate social values and multi-stakeholder collaborations into a holistic approach to planning of future mobility.

Each group got one of the four identified problematic issues (defined in bullet 1) and a protocol to work based on this basic recipe for creating guidelines (with an example from system design):

HOW TO CREATE A GUIDELINE?

Catchy name of guideline:

#1: Visibility of system status

What is the guideline about:

- The design should always keep users informed about what is going on, through appropriate feedback within a reasonable amount of time.

Why is it important (rationale):

- When users know the current system status, they learn the outcome of their prior interactions and determine next steps. Predictable interactions create trust in the product as well as the brand.

How:

- Communicate clearly to users what the system's state is — no action with consequences to users should be taken without informing them.
- Present feedback to the user as quickly as possible (ideally, immediately).
- Build trust through open and continuous communication.

BREAK IT DOWN

WHAT

- Understand the problem and its source

WHY

- Make sure we work on relevant problems
- Make sure we understand the customer's experience
- Make sure we deliver value to the user

HOW

- Bring in all stakeholders, and explore why it is a problem
- Explore the context in which this problem arise
- Explore the reasons for why it is a problem
- Consider potential future developments

FUTIRIZING TOGETHER

WHAT

- To align future plans among different stakeholders

WHY

- Avoid clash of plans
- Build upon each other

HOW

- Create potential scenarios & models
- Industrial, public, NGO, citizens
- Workshops

PEOPLE ARE NOT NUMBERS

WHAT

- The planning should take into account the more complex social life.

WHY

- Because the singular metric of efficiency doesn't refect social life.
- To move away from the "more tech" paradigm.

HOW

- Identify local stakeholders (not just people living in the area, but the people/companies supporting the living etc.)
- Co-creative dialogue with residents.
- Define other more comprehensive metrics that map the social life (similar area if new area)
- Plan for flexibility/readiness to change
- Engage continously with (new) people moving into area

QUADRUPEL PLUS

WHAT

- We are not able to solve societal problems or front challenges on our own

WHY

- All stakeholder need to understand each others vision to collaborate towards reaching their goals

HOW

- Build better (shared) platforms for enabling different agendas and goals.
- Get a better understanding of each others business models (procurement), system, and structures.
- Break away from old patterns and structures
- Greater representation of different actors and decision makers to reach goals
- Involve citizens, from the start, mixing both qualitative and quantitative methods

CONTEXTUALIZE IT

WHAT

- Understand the context

WHY

- Take into account different perspectives
- Consider all stakeholders
- Consider other variables that might effect the context
- Avoid a too narriw focus
- Develop the best solution for most people

HOW

- Involve stakeholders and users from other regions
- Include different demopgrahics

ADAPTIVE MOBILITY HUB

WHAT

- Move beyond the physical hub by accounting for change and making hubs moveable. Assuming we need to support seamless modal change and combine it with other things

WHY

- We need to account for qualities of the space, integrate services, account for technological change and fluctuating needs between groups over time
- Integrate coordination efforts and relationship, move physical space

HOW

- Start with behaviours and adapt solutions to them
- Cater for trust and be safe
- Use the guidelines about social value

G

CO-CREATED OUTCOMES ON FUTURE MOBILITY

CO-CREATED OUTCOMES ON FUTURE MOBILITY

In this section we pull together insights from the project into different types of overviews.

1. In the first part, we present a visual vision of a future world, describing the context and circumstances based on outcomes from co-creation workshops in which we have turned the ethnographic findings into worst and best case scenarios. You will find the future vision on the next page.

In this vision we have placed two design concepts that we have developed in relation to the first and last mile challenge and mobility hubs. We call them **'community value-based travelling'** and **'flexible mobility hubs'**. Both of these design concepts are developed to facilitate socially anchored mobility solutions.

2. The second part, presents an overview of co-created insights collated through all our different stages and activities in the project. These different 'cards' presents key features of community-value based travelling and forms a collection of starting points for discussing future mobility solutions from social perspectives. The key insights can be utilized in workshops and discussions.

3. Finally, we present 'Exploring the social universe of future mobility', which is a tool to help elaborate discussions through moving around in a star chart.

Future scenario

Future Pod Life

Our scenario plays out in a world where mobility solutions are highly regulated due to the banning of fossil-fueled privately owned vehicles in the cities and a complete electrification of the automotive industry. Public and private actors are co-organising and developing transport solutions together and blurring the idea of public vs. privately managed transport. Based on a renewed focus on enabling social sustainability as key for service design, urban planning and policy-making, people are encouraged to come together in their neighbourhoods to co-create their own mobility communities with the help of shared vehicles and digital mobility services that connect different service providers.

Offices will be smaller, and commuting will be more regulated. You might be forced only to be able to travel to the city every other day. In rural areas, electric and autonomous cars/pods will still be necessary. In cities, there will be a limited number of vehicles. For example, there might be a fixed amount of mobility available due to restrictions on the number of active buses in the city. This creates a need for optimizing mobility and thinking differently about what travels are actually needed. There will be a need for greater flexibility since individuals need to adapt to the "globally optimal solutions", not just what's personally best for them. With AI and machine learning, we can cluster mobility patterns and create services based on these insights.

After years of major disappointments and failures in the implementation of fleets of highly individualised pods, where everyone had access to their own pod, and an array of newly built so called 'mobility hub' establishments that ended up competing and disrupting already established informal social hub solutions, the governments and industry realised that people are much more than numbers can tell, and that a new paradigm is needed that takes local life, values and knowledge seriously in the innovation processes.

Design Concepts

The Pop-Up Mobility Hub
Pop up and mobile physical hubs designed to collaborate with infrastructure by adding other services, i. e a shuttle as waiting shelter or moving e-scooters around by attaching them to the back of a bus or a train. Hubs that emerge during soccer training, innebandy practice or on a day of some other activity. The hub is not necessarily a physical building, it can be mobile like a fleet of cars or a shuttle that moves around as needed. e.g. school buses or walk in buses.

The Virtual Mobility Hub
Workplaces can be shared mobile offices where the people make up the office, not the physical space. When there is a need, the team meets up based on the team's mobility and life needs. The service collects data from people's private and work calendars and positions and life/mobility patterns, and based on that, suggests places where to meet the team and work. To enable this, the "system" also provides a shared mobility service. The service can also make sure that everybody travels the same distance over a year by optimizing the meeting locations.

Value-based Travel Service
This shuttle pool provides access to places based on local needs and values, and when it is needed. Transport both within and between different areas that caters for accessibility for all (for example the growing senior population), and not only in terms of efficiency but also in terms of 'getting around' as a social endeavor. Flexible enough to cater for changing and diverse populations, supporting the agency of micro networks (for example existing communities of neighbours and family constellations, enhancing various kinds of public transport where it is needed (i. e soccer practices). This advanced public car/shuttle pool service can utilize data from different companies/sources to provide mobility services that mitigate congestion and carbon footprints. The service uses AI to predict when and where to meet, based on CO2 and energy required, as well as available transport.

Collated insights on Future Mobility

ACTIVITY

Physical activity is attributed value in relation to mobility. Biking or walking is valued beyond efficiency as it gives the opportunity to exercise, have time alone, connect to nature or the city. Parents prefer their kids to be active rather than having the comfort of being driven around and being on devices.

AUTOMATION

... is seen in comparison with or in relation to human drivers – sometimes safer, sometimes less safe. Some believe it will come whether they like it, others feel it is beside the point of the most pressing mobility questions. Automation seems to be hindered by density or difficult terrain. To many, it cannot replace the social dimensions of driving (others) or the flexibility and local knowledge of human drivers.

AUTONOMY

Autonomy is an important value to participants. Parents would like their children to be able to be independent in their mobilities. Having autonomy in their transportation is a big shift for youngsters and for their parents. A moped can become “a gift from heaven”, a driving license part of growing up. Independent access to a transport system is a vector of identity, it can also offer another level of sociability.

COMMUNITY

The local community plays an important part not only during travel but also concerning everything that revolves around transitioning from one place to another. The local community is an important social space, that the design of mobility services should embrace and empower. In order to do this, it’s important to collaborate both on the macro level, and the hyperlocal level with local communities and local vendors.

EQUALITY

Residents without cars are even more disadvantaged in the car centric area of BGB. Residents of both areas feel underserviced. Within the area, distinctions between different places and groups mean people have unequal access to transport, public service, and integration. We need to pay close attention to who carries the weight of coordinating mobilities.

FAMILY LOGISTICS

Family logistics are crucial to a lot of mobility decisions and imaginations and make up a key reason for car use and multiple car ownership. Children are at the centre of many scenarios. Enormous efforts are involved in planning and coordination between parents to facilitate picking up/dropping off kids and their friends. In both areas, we can therefore see family as a mobility hub and parents as a mobility service. Facilitating this planning in a supportive rather than invasive way should be at the heart of new mobility services.

Collated insights on Future Mobility

HUBS

The idea of a hub needs to be revised and replaced with more relevant concepts. DHG is so concentrated it is almost one hub and BGB is too spread out for one hub. Both areas have working hubs already that services could be added to. People have established informal pick-up and drop-off places through shared mobility practices.

INFRASTRUCTURE

... is a key factor of modal choice and in how people organise their mobilities. A missing bike lane or streetlight or a displaced bus stop may be the reason for single mode car trips.

LOCAL LIFE

...is a priority over getting out of the area more efficiently. Having access to shopping, entertainment and meeting places locally is an important wish for people in an area that feels like it has not much of a centre. Making local life attractive is more important than getting out for those who already have the resources to go where they like and critical for those who do not.

MULTIMODALITY

... is a reality for many who use commuter parking or who hope for better ways to combine cycling with other modes of transport. Some do not have the choice. It often goes hand in hand with combined activities and complex family logistics.

OPPORTUNITY

Opportunity concerns the ability of mobility services to either safeguard or provide new opportunities for us in our everyday lives. The reach of mobility services can provide us with new destinations, and new opportunities enabling us to both explore and share new experiences and opportunities in life. However, since new services provide people with new opportunities, it is also essential that they are open to all, both from an equity perspective and an accessibility perspective.

OWNERSHIP

... of a car is « a hassle » and a cost, but it is also imbued with symbolic meaning of social status, integrated in systems of social distinction, a means of integration and making kin through caring and sharing practices. It means flexibility and freedom to be spontaneous, reactive to emergencies. Getting rid of or downsize at least the second car is valuable goal for some, gaining ownership or free usage of a car is an important goal for others.

Collated insights on Future Mobility

PARENTING

Driving is parenting for a lot of people, driving others is a way of caring in both areas. Providing and negotiating access to a vehicle and coordinating child mobilities in an important part of everyday family life and logistics.

RESILIENCE

Resilience is the ability to cope with or bounce back from challenges. Resilience is an essential aspect concerning the quality of life, routines in everyday life, and the ability to transition between activities and services in a seamless way. Resilience makes it possible to both plan for the expected, and deal with the unexpected.

SHARING

In both areas, there are already many existing or desired sharing practices, within relevant communities and social relations, especially to drive children or otherwise dependant people. Sharing – and driving – becomes a form of caring, of integration, of belonging. While some sharing practices might be extensible, sharing with strangers is viewed with suspicion. Anonymous open sharing networks do not function as equivalents to existing social sharing practices.

SOCIABILITIES

Are central to the way people think about mobilities. Mobility is not just a way to get to common activity – it is also part of the commons and a way to socialize. Meeting neighbours on the shuttle bus, sharing a vehicle with teammates, coordinating to be on the same bus in the morning – are important existing and imagined features in transport.

SPACE

...matters! Some micromobility options are nonsensical for residents of suburban and rural neighbourhoods with difficult terrain. The dense pedestrian areas in DHG make some options more likely than others. Being familiar with local particularities is an important value. Public or private spaces are crucial to how sharing and automation are perceived.

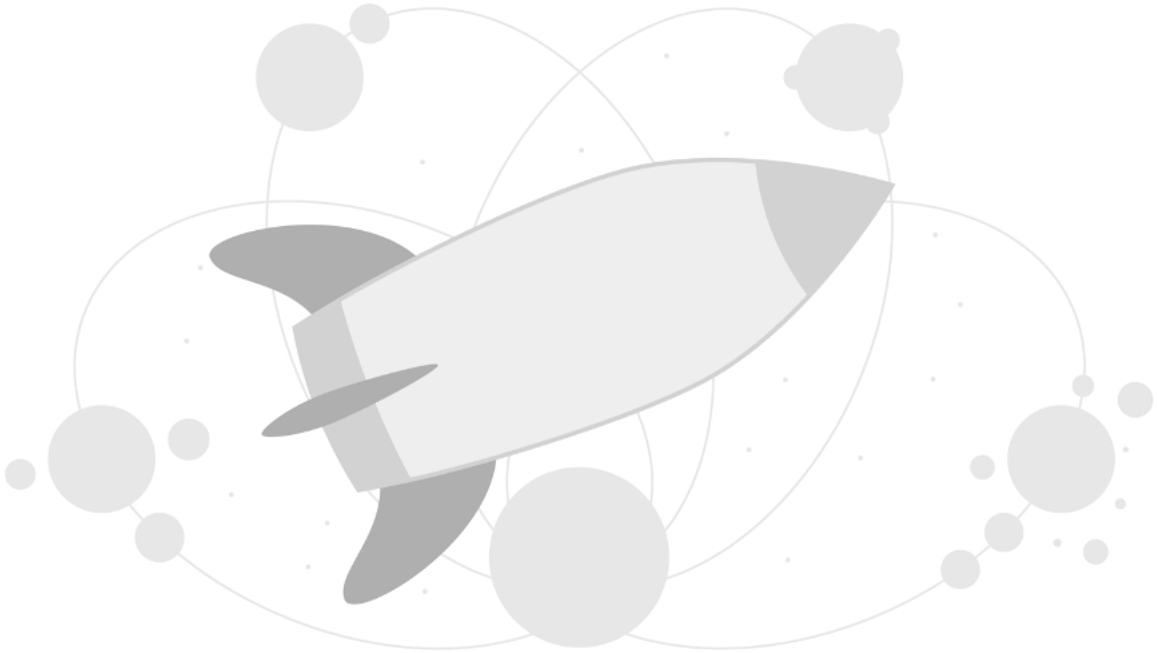
TRANSIT

Public transport is highly valued in both areas and transit options are an important factor in residential mobility. Decreased offer, lack of access and quality of public transport drives individual car use. Access to public transport as key demand. Integration (rather than competition) with existing public transport systems is crucial for acceptance, efficiency and relevance for any new system.

Exploring the Social Universe of Future Mobility

This is a tool to evoke discussions about community value-based travelling and future mobility more generally. The idea is to initiate discussions around social themes instead of a mobility service, and to go from there into the universe of insights and reframings developed in the AHAII project. The star chart (see next page), with AHA II insights and methodology, can be transferred into other areas than Drottninghög and Bergum Gunnilse. Begin by deciding on what social theme you would like to explore (see below). These themes has been proven to be connected to mobility through the AHA methodology (as well as in other literature). Next step is to discuss this theme in relation to mobility by the help of the star chart and navigation cards on the coming two pages!

Happy travels through the social universe of future mobility!



Equality
Equity
Trust
Local engagement
Well-being

Self-provision
Social cohesion
Caring
Hope
Access

Autonomy
Integration
Green adjustment
Safety
Fairness

Navigation Cards

To accompany the Future Mobility Star Chart we have developed a set of cards that can aid in navigating the star chart in a collaborative setting. The cards are made up of three different categories that relate to the findings from AHA II. The first category consists of themes that can aid in exploring the star chart, below you can find an example card concerning the theme of care, examples of other themes are equity, well-being, autonomy, community, and local engagement. The second category consists of guided explorations cards, these cards are more open, and allow for exploring the reframings (community of sharers, social travel, tailoring and lived places) in a playful manner. The third category consists of free exploration cards, when using these cards you plot your own course through the star chart.

THEME

How can caring be promoted in a community of sharers?

★ ★ ★

For many people helping others with mobility needs is an act of caring. This can for example range from giving someone a ride, to helping someone transport something, and similar things. So, how can people express care, or be cared for in a community of sharers?

Make 3 notes of significant things you discovered during your journey.

GUIDED

Pick a star close to the planet of tailoring and explore.

★ ★ ★

Tailoring is an essential aspect of designing a service that provides value for someone. Throughout our everyday lives, we have routines, chores, and exciting experiences that we want to be able to weave into our lives. How does the star you pick relate to tailoring, and how can discoveries you make help us become better at tailoring?

Make 3 notes of significant things you discovered during your journey.

EXPLORATION

Plot your own course across the star chart and visit two interesting stars.

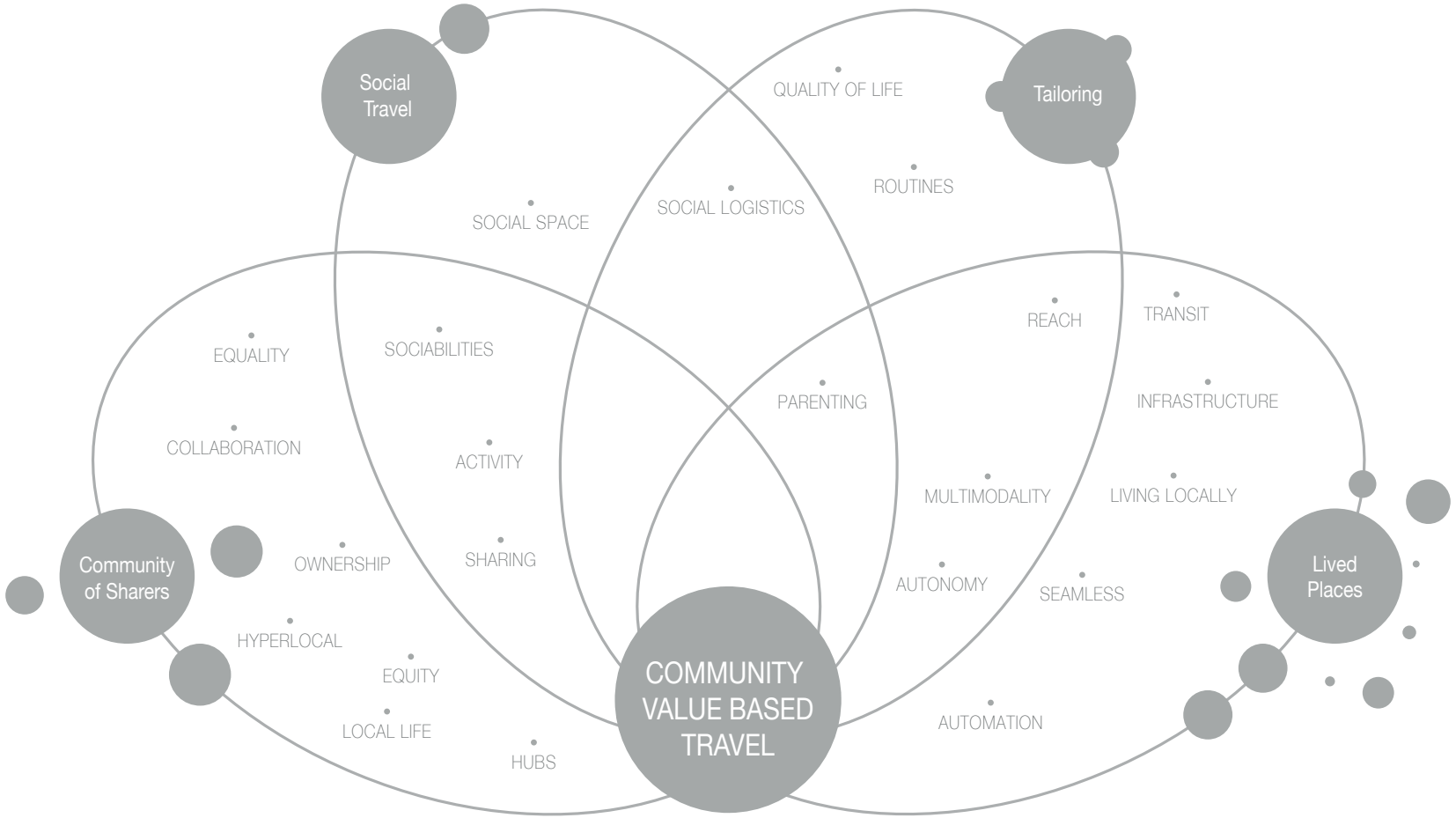
★ ★ ★

Decide collaboratively which 2 stars your group should visit in the star chart. Why are these two stars particularly interesting to visit from a future mobility service perspective? What do we need to explore more concerning these 2 stars, and how can we do that?

Make 3 notes of significant things you discovered during your journey.

Around the AHA II design concept of community value based traveling orbits the planets of the different reframings we have developed in the AHA II project.

These help us to question taken for granted solutions and ideas from a human approach. (see more in section C). In the space between the planets you find different stars of key insights from the AHA II project that relates to local social values in mobility. They are organised in realtion to the reframing orbits, but should be understood as fluid in terms of where they fit the best. On the next page you find examples of navigation cards, a full deck can be downloaded from the project web site together with the rest of the transition tools presented in section D.



THE AHA TOOLKIT

All materials in the catalogue are presented on our website and they are free to download. Use them with reference to the project, thanks!

If you are interested in ordering the full AHA II toolkit, with the games and catalogue in printed versions with descriptions on how to use them, you can order a toolkit from our website. Our webshop will open in December 2022.

If you would like to invite us to present and discuss the AHA methodology, let us know. We offer:

- Tailored training concepts for your organisation in multi-stakeholder and people-centred methodology; principles and practices. This education can be run through University of Halmstad with optional university credits
- Tailored presentations and key note talks
- Poster presentations
- Workshops with tailored outcomes and documentations

If you would like to create a design ethnographic living lab in particular neighbourhoods, and would like to invite us and Halmstad University as partners, let us know. We have long experience of this approach - and not only in the area of future mobility.

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