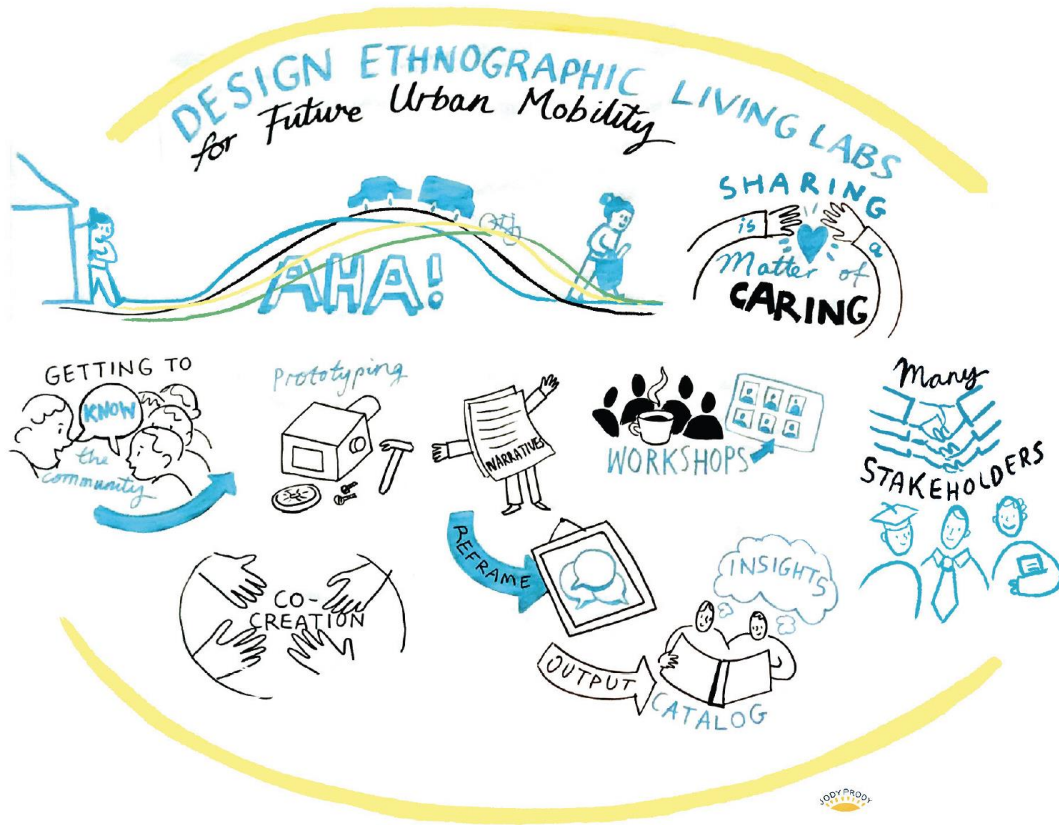


DRIVE: SWEDEN



With support from

VINNOVA

Swedish Energy Agency

FORMAS

Project title: AHA II – Design Ethnographic Living Labs for Future Urban Mobility
Projekt leader: Vaike Fors, Halmstad University
Date: 31st October 2022

Strategic innovation programmes

Table of Content

1. SUMMARY	2
2. SWEDISH SUMMARY	2
3. BACKGROUND	3
4. PROJECT SET UP	3
4.1 PURPOSE	3
4.2 OBJECTIVES.....	4
4.3 PROJECT PERIOD	4
4.4 PARTNERS.....	4
5. METHOD AND ACTIVITIES	4
6. RESULTS AND DELIVERABLES	5
7. CONCLUSIONS, LESSONS LEARNT AND NEXT STEPS	8
8. DISSEMINATION AND PUBLICATIONS	9

1. Summary

AHA II is an innovation and research project that aims to contribute to the development of Drive Sweden's new strategic themes Society Planning and Public Engagement, by targeting the 2021 goals for these themes in the Program Plan. The project is made possible by two of the key successful outcomes of the strategic proof-of-concept AHA project (2018-2019) which has: 1. Demonstrated the validity of a human-centred approach to creating Sustainable City Mobility Services, and also 2. Created a new methodology through which city planners, industry partners and university stakeholders have been able to successfully collaborate to create effective and aligned solutions that fits the different partner's needs (see more at www.hh.se/aha). The new approach to collaboration established in the AHA project has enabled us to map out a practical methodology in AHA II for bringing together these stakeholders with citizens, communities and public transport in order to create mobility services in everyday life 'Living Lab' scenarios. The goal of the project was to develop a transferable and scalable Design Ethnographic Urban Living Lab methodology that engages people in the development of future mobility solutions, while bringing together partners from industry, academia and community service. In the project, two Urban Living Labs were established; in Drottninghög in Helsingborg, and Bergum-Gunnilse in Gotehrnburg. Through this methodology, the project developed knowledge about people's needs, wishes and expectations of future mobility solutions in their home and urban environment, as well as implications of this for the development of next-generation digital services, ways of transporting people and goods and urban planning of so-called 'mobility hubs'. The AHA II methodology, its techniques, key insights and design ethnographic scalable transformation toolkit are presented in the AHAI-catalogue that is available on the project website <https://aha2.hh.se/>

2. Swedish Summary

AHA II är ett innovations- och forskningsprojekt som syftar till att bidra till utvecklingen av Drive Swedens nya strategiska teman Samhällsplanering och samhällsengagemang, genom att rikta in 2021-målen för dessa teman i Programplanen. Projektet möjliggörs av två av de viktigaste framgångsrika resultaten av det strategiska proof-of-concept AHA-projektet (2018-2019) som har: 1. Demonstrerat giltigheten av ett människocentrerat tillvägagångssätt för att skapa hållbara stadsmobilitetstjänster, och även 2. Skapat en ny metodik genom vilken stadsplanerare, branschpartners och universitetsintressenter framgångsrikt har kunnat samarbeta för att skapa effektiva och anpassade lösningar som passar de olika partners behov (se mer på www.hh.se/aha). Det nya tillvägagångssättet för samarbete som etablerats i AHA-projektet har gjort det möjligt för oss vidareutveckla dessa idéer till en praktisk metodologi i AHA II för att sammanföra dessa intressenter med medborgare, samhällen och kollektivtrafik för att skapa mobilitetstjänster i vardagslivets "Living Lab"-scenarier. Målet med projektet var att utveckla en överförbar och skalbar Design Ethnographic Urban Living Lab-metodik som engagerar människor i utvecklingen av framtida mobilitetslösningar,

samtidigt som partners från industri, akademi och samhällsservice sammanförs. I projektet etablerades två Urban Living Labs; i Drottninghög i Helsingborg, och Bergum-Gunnilse i Göteborg. Genom denna metodik utvecklade projektet kunskap om människors behov, önskemål och förväntningar på framtida mobilitetslösningar i deras hem- och stadsmiljö, samt implikationer av detta för utvecklingen av nästa generations digitala tjänster, sätt att transportera människor och varor och urbana planering av så kallade "mobility hubs". AHA II-metodiken, dess tekniker, insikter och designetnografiska skalbara transformationsverktyg presenteras i AHAI-katalogen som finns tillgänglig på projektets hemsida <https://aha2.hh.se/>

3. Background

AHAI addresses the challenges of future mobility and transportation, with a particular focus on first and last-mile mobility solutions, that are current challenges of both industry and urban planning stakeholders in the development and innovation of these fields. The AHA II project was initiated to address the current challenges of future mobility, in particular the gaps in research and collaborations across industry, policy and citizens. Addressing particular areas everyday mobility and transportation, the project has engaged and created collaboration between industry partners and urban planners, while directly engaging citizens and communities in developing human centered concepts and solutions to the first and last mile, mobility hubs and

AHAI is part of Drive Sweden's strategic project portfolio, under the Public Engagement scheme, funded through VINNOVA between 2019-2022. The AHA II project contributes directly to Drive Sweden's mission of engaging citizens and communities in research and development of cross-stakeholder innovation schemes to address the challenges connected to the next generation mobility system for people and goods. AHAI has contributed to the shift in technology-driven innovation by separate stakeholders, towards human-centered collaborative approaches for future mobility solutions. The AHA II targets and fulfills the goal for the thematic area Public Engagement by delivering a proof-of concept unique and tailored methodology for involving people, and ethnographic insights, into co-creation of socially sustainable future mobility.

4. Project set up

4.1 Purpose

Why is this project important and what was the purpose of the project?

The purpose of the project was to develop and test user involving methods for conceptualising future mobility in relation to the 'first and last mile challenge' and 'mobility hubs'. AHA II was set to redefine the Living Lab methodology through the developed human-centric approach, by creating test scenarios in already existing social communities and networks. Combining a human-centred and design ethnographic approach with iterative prototyping and technology testing, the projects ambition was to put social and human dimension of everyday life before technological innovation and usability. Above

4.2 Objectives

Based on research and insights into automated mobility in everyday practices, the AHA II project was designed with two related ambitions. First, to serve as a research and design-based intervention to demonstrate and innovate ways to involve communities of people in design of urban mobility solutions in relation to first/last mile transport of people and goods, and in doing so will produce ideas and concepts for new MaaS services and 'mobility hub' concepts. Second, this methodology was set to demonstrate how to address the challenge of creating integrated transport solutions for everyday and shared mobilities. To do so, the project ambition was to bring together technology design of integrated transport, city planning, design anthropological research and an innovative Living Lab methodology, in order to engage citizens and communities in an experience-based participatory approach to creating new relevant and workable models for partners in Drive Sweden to benefit from. The project aim was to deliver a set of exemplar examples in which the model has been used and demonstrated, and which have their own consequences and city planning implications for future mobility services in Gothenburg and Helsingborg. These examples were planned to be demonstrated in city expos, conferences and Drive Sweden events, as well as through a website that continually presents insights, results, recommendations and tools for others to be inspired by.

4.3 Project period

1. October 2019 - August 31. 2022

4.4 Partners

AHAII has benefitted from the active participation of several strategic partners: Göteborg City, Halmstad University, Helsingborg City, Skånetrafiken, Volvo Cars Corporation, Västtrafik.

The insights in the project were produced through design ethnographic studies in two areas in Sweden within the city of Gothenburg and the City of Helsingborg. The studies were carried out in close collaboration with local stakeholders and projects: Helsingborgshem, Project DrottningH, IdéA Drottninghög, City Expo H22 and Bergum Gunnilse Utveckling (BGU)

5. Method and activities

The project has taken a human-centred approach to exploring and developing innovative mobility solutions, through close engagement of diverse stakeholders and local communities. Based on design ethnographic studies, collaborative explorations and co-design with stakeholders and citizens, the project has developed innovative methodologies, scenarios and possible solutions, that reframe current technology driven approaches to MaaS.

Design ethnography brings together the theory, methods and approaches of ethnography and design research to create a collaborative approach that involves both citizens and stakeholders. Thus, on an operational level the AHA II project has involved 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 has also meant working with participants and stakeholders in workshops, to co-create knowledge, imagine future technologies and codesign prototypes and services.

On an organisational level, AHA II was structured as a mix of living lab meetups, and stakeholder workshops (see fig. 1). The meetups acted as a way to disseminate findings and open up for dialouge with people outside the core project group, the meetups were therefore open to to external guest, and project stakeholders were encouraged to invite guests from their respective organizations. On the other hand, The stakeholder workshops acted as a way to move the project forwards through co-creation and collaboration on findings that was uncovered during the day to day design ethnographic activities within the urban living lab. In contrast to the meetups, the stakeholder workshops were primarily open to project participants.

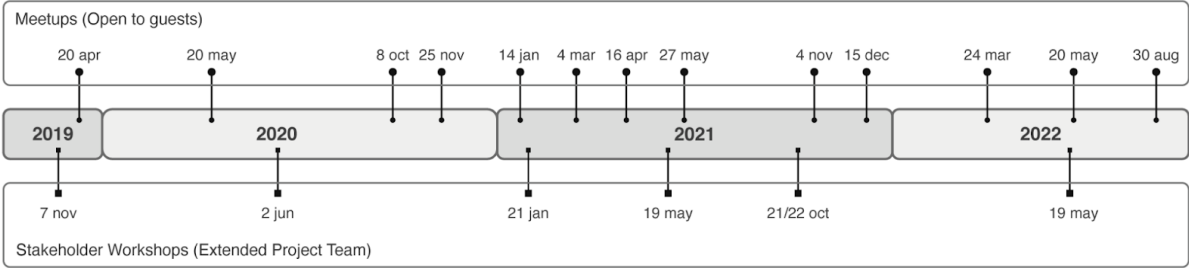


Figure 1: AHA II stakeholders activities

Both the operational and organisational activities are presented more in detail in the AHA – catalogue (downloadable at <https://aha2.hh.se/>)

6. Results and Deliverables

The collaborative research approach and methodology is documented through production of the AHAI Catalogue, which has been used both a resource for stakeholder engagement, as well as an analytical and methodological tool in the project. It is rich on empirical insights and comparisons between the two main communities of Bergum-Gunnilse and Drottninghög. The methodology includes novel design ethnographic principles and components of the AHA methodology, reframings of contemporary debates on MaaS based on human-centred values and expectations, format and tools for collaborative and cross-sector design workshops, and speculative future scenarios that build new understandings and potentials for the first and last mile, and mobility hubs, in urban context. The catalogue is a main source and outcome of the project, that is now distributed and applied into academic, industry, municipal and civic contexts for exploring future mobility through an urban living lab approach.

On a general level the main findings implies a reframing of technology-driven narratives about future mobility solutions and mobility hubs from a social perspective. This means moving beyond superficial ideas that people would favour personalised cost- and time efficient singular travel and instead focus on what people value in terms of how they tailor their travels in relation to their social life. Based on these re-framings, the project co-created two future mobility design concepts that were discussed in relation to a future world – Future Pod Life - that was developed through the life of the project. These two concepts were: Community value-based traveling services and pop-up mobility hubs.



Figure 2: The future Pod Life vision and the two AHA II design concepts.

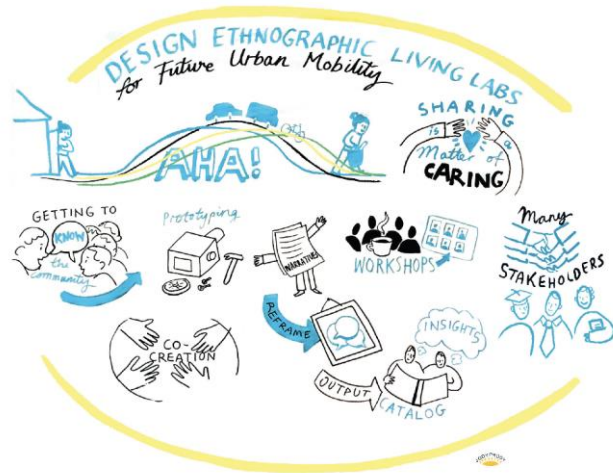
The main delivery in the project is co-created the proof-of-concept AHA II methodology that is based on the following principles: Scaling human approaches, Tailoring approaches, Anchoring voices and Reframing perspectives (STAR). The methodology consist of the following components:

AHA methodology components

- **Design Ethnographic activities**
Tailored ethnographic fieldwork
Co-creative workshops

Design Ethnographic Triggers
Canvases, Vignettes
Local maps, visualisations
Speculative Narratives, films

Design Ethnographic Transformation
The Common Ground Game
Mobility Imaginaries/Desires
Friction Cards



Both the key insights and the methodology are presented in detail in the AHA – catalogue that is companioned with the AHA II toolkit with the transformation tools developed through the project (for example the Common Ground Game and the Friction Cards).



Figure 3: AHAI Transformation tools in action during multi-stakeholder workshop on future community value-based travelling.

The project has reframed the first and last mile, and mobility hubs, through the production of new concepts and scenarios, which are part of core challenges for Drive Sweden's visions to lead on creating sustainable future mobility that is accessible for all. By taking its starting point in creating a methodology for developing and scaling specifically *social* sustainability and public engagement, AHA II makes a unique contribution to enact this vision.

7. Conclusions, Lessons Learnt and Next Steps

Through the local living lab methodology, AHA II has taken a human-centered approach to future mobility and transportation. Focusing on the everyday lives, experiences, challenges and imaginations of people and communities, the project draws in human and social perspectives to develop sustainable future mobilities. 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, moving 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. The projects design concepts 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 has demonstrated how to stage bottom-up exploration and engagements, combined with close stakeholder collaborations. The 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 II provides new and sustainable perspectives that reframe dominant narratives on technology innovation and future mobilities. The methodology, and how it is demonstrated through the AHA-catalogue and the companion toolkit, can be useful for implementing community value-based mobility solutions in any settings. It can also inspire new projects in the way it practically lays out the foundation for developing urban living labs and multi-stakeholder co-creation activities.

Next steps that already has been taken is to scale the AHA II methodology through participation in new EU projects that has recently been funded; the Smart Public Transport Initiatives for Climate-Neutral Cities in Europe (SPINE) project and the Cooperative and Interconnected Green delivery solutions towards an era of Optimized Zero-emission last mile Logistics (GreenLog) project. In both these projects learnings and tools from the AHA II project will be set into practice in Urban Living Labs around Europe.

8. Dissemination and Publications

Popular scientific publications

The AHA – catalogue, downloadable at <https://aha2.hh.se/>

Forskningsprojekt AHA II - hör forskare och samverkanspartners berätta, 20 september 2022. Film producerad av Högskolan i Halmstad.

<https://www.youtube.com/watch?v=zBNgi5Sg9sc>

Levande laboratorium – för hyresgästers transporter. Artikel i Hem & Hyra, 16 mars 2020.

<https://www.hemhyra.se/nyheter/levande-laboratorium-hyresgasters-transporter/>

Hållbara smarta mobilitetslösningar med människan i centrum – flera nya tvärvetenskapliga forskningsprojekt inleds. Artikel i Högskolan i Halmstads forskningsmagasin SAMSPEL, 25 november, 2019. <https://samspel.hh.se/artiklar/2019-11-25-hallbara-smarta-mobilitetslosningar-med-manniskan-i-centrum---flera-nya-tvarvetenskapliga-forskningsprojekt-inleds.html>

Public talks and demonstrations

AHA II exhibit and companion workshops during H22 City Expo in Helsingborg, May 30-July 3, 2022

Brodersen, M. & Ebbesson, E. invited workshop facilitators at Monash University, facilitating the Training Workshop - Wicked Games of Future Mobility, October 27, 2022.

Ebbesson, E. & Raats, K. (2022) invited speakers at Human-Centred Computing (HCC) lab at Monash University.

Raats, K. (2022) invited speaker in panel at the Automated Decision Making & Society symposium on 'Designing Automated Mobilities of Care'.

Fors, V. (2022) invited speaker in panel at the Automated Decision Making & Society symposium panel on 'Interdisciplinary and multi-stakeholder automated mobilities'.

Fors, V. (2022) invited key note speaker at Gate21 Copenhagen open seminar on future green everyday mobility:shorturl.at/yHKTU

Fors, V., Ebbesson, E., Duval Innings, S. invited workshop facilitators at Viable Cities' and Drive Sweden's Transition Lab, June 14, 2022.

Raats, K. (2022) invited key note speaker at Halmstad University Digital Service Innovation Master Thesis Defense.

Raats, K. (2022) invited speaker at the IKEA Inspirational Speaker series: investigating trust in autonomous vehicles and shared services.

Andersson, S, & Duval Innings, S. (2022). Invited speakers at EUROCITIES' Mobility Forum Webinar Co-creation and co-design for better places and mobility solutions - Users' engagement in the development of future mobility solutions.

Andersson, S, & Duval Innings, S. (2022). Invited speakers at Möjligheter med Mobility Management i samhällsplaneringen, MMMiS Webinar arranged by Trivector - Co-creation and co-design for better places and mobility solutions - Users' engagement in the development of future mobility solutions.

Brodersen, M. (2022), Keynote speech on Sustainable Automation at Warwick University GRP annual conference on Artificial Intelligence and Digital technologies.

Fors, V. (2021) invited speaker at the Drive Sweden Forum - Driving the future of sustainable mobility in the panel: Sustainability scenario battle - Where are we headed?

Fors, V. (2021) invited speaker at the inaugural event 'Klimatsmart mobilitet 2030' organised by Viable Cities and Drive Sweden.

Fors, V. (2021) invited speaker at the third European Conference on Connected and Automated Driving in the panel 'Accessible & Meaningful: what does it take to make CCAM the citizen's given choice?' <https://eucad2021-conference.eu/agenda?session=81326>

Fors, V., Andersson, S, & Duval Innings, S. (2021). Invited speakers at the Halmstad University Innovation Day on small and middle-sized smart cities and communities: AHA II: Design Ethnographic Urban Living Labs – A Human Approach.

Fors, V. (2021). Invited speaker at Halland Tech Week in panel on Future Mobility in Halland.

Raats, K. (2021) invited speaker at UXArena opening event at Lindholmen: How to study things that do not exist yet?

Scientific Conference presentations

Fors, V., Smith, R. C. & Brodersen, M. (2022). Re-Framing Ai-driven Futures of the first and last mile of travel: A design ethnographic approach. Royal Anthropology Institute: AI and the Future of Human Society virtual conference, 6 – 10 June, 2022.

Brodersen, M. (2022), "Life in the last mile – Design Ethnographic investigation into MaaS and automated mobility in suburban spaces", presentation at the 30th International Colloquium organised by Gerpisa (Le réseau international de l'automobile) in collaboration with the PVMi Program on Vehicle and Mobility Innovation in Detroit, Michigan, USA.

Brodersen, M., Lutz, P. (2022) “Present Tensions in Autonomous Futures”, Paper presented at the 30th International Colloquium organised by Gerpisa (Le réseau international de l’automobile) in collaboration with the PVMI Program on Vehicle and Mobility Innovation in Detroit, Michigan, USA.

Brodersen, M. (2021), “Capturing socio-spatial complexity through participatory visual ethnography – DRIVING ALONG”, Presentation at the hybrid International Visual Method Conference in Capetown.

Brodersen, M., Raats, K., & Fors, V. (2021). “Automating the last mile? Reframing mobility narratives through collaborative design ethnography. Paper presented at the T2M Conference on Mobilities in Transition in Lisbon, Portugal.

Publications

Brodersen, M., Fors, V. & Pink S. (submitted) Automating the First and Last Mile? Reframing the ‘challenges’ of everyday mobilities. Submitted for Mobilities Journal

Brodersen, M. (pre-submission accepted) Driving Along – Ethnographies visuelles participatives sur la route. Special issue on Visual Sociology in Sociologie et Société.

Ebbesson, E. & Fors, V. (submitted). Retaining Ways of Co-Creation. Submitted paper for the Thirty-first European Conference on Information Systems (ECIS 2023), Kristiansand, Norway.

Ebbesson, E. (2022). Towards a co-creation framework based on citizens' dreams of future mobility. *Transportation Research Interdisciplinary Perspectives*, Vol. 16.
<https://doi.org/10.1016/j.trip.2022.100686>

Fors, V., M. Brodersen, K. Raats, S. Pink & R. C. Smith (2022) ‘Investigating ADM in everyday life: A Design Ethnographic approach’ in *Everyday Automation*. S. Pink, D. Lupton, M. Berg & M. Ruckenstein (eds). London: Routledge.

Fors, V., Smith, R. C., Brodersen, M. & Ebbesson, E. (forthcoming) *Design Ethnographic Approaches for Reframing AI-Driven Futures*. Contracted for Special Issue in *Mobilities Journal: Anticipatory Automated Mobilities* edited by Sarah Pink and Thao Phan.

Nowaczyk, S, Resmini, A., Long, V., & Fors, V. (2022). Smaller is smarter: A case for small to medium-sized smart cities. *Journal of Smart Cities and Society*, Vol. 1, nr 2, pp. 95-117.

Pink, S. Fors, V., Lanzeni, D., Duque, M. Sumartojo, S. & Strangers, Y. (2022) *Design Ethnography*. Oxford: Routledge.

Pink, S., V. Fors, K. Osz and P. Lutz (2023) 'Future Mobility Solutions?: design ethnography as an interventional device' in D. Lanzeni, K. Walторp, S. Pink and R.C. Smith (eds) *Anthropology of Futures and Technologies*. Oxford: Routledge.

Pink, S., Raats, K., Lindgren T., Osz, K. & Fors, V. (2021) 'An Interventional Design Anthropology of Emerging Technologies' in Maja Hojer Bruun and Ayo Wahlberg (eds). *The Handbook for the Anthropology of Technology*. Palgrave

Pink S., Smith R. C., Fors, V., Lund, J., Raats, K., Osz, K., Lindgren, T & Broström. R. (2021). *Mobility as a Service Through Design: A Human Approach*. In: Coxon S., Napper R. (eds) *Advancing a Design Approach to Enriching Public Mobility*. Intelligent Systems Reference Library, vol 198. Springer, Cham. https://doi.org/10.1007/978-3-030-64722-3_1

Pink, S., Osz, K., Raats, K., Lindgren, T. & Fors, V. (2020) *Design Anthropology for Emerging Technologies: trust and sharing in Autonomous Driving futures*. *Design Studies*. <https://doi.org/10.1016/j.destud.2020.04.002>

Raats, K., Fors, V. & Pink, S. (2020). *Trusting Autonomous Vehicles. An Interdisciplinary Approach*. *Transport Research Interdisciplinary Perspectives*, Vol. 7, OA. <https://doi.org/10.1016/j.trip.2020.100201>

Raats, K., Lund, J. & Brodersen, M. (1st round of review). *Trust in automated driving systems: Insights from a Swedish suburb*. *Journal of Responsible Innovation*.

Raats, K., Ebbesson, E. & Fors, V. (submitted). *Tailoring co-creation for socially sustainable mobility*. Submitted paper for the Thirty-first European Conference on Information Systems (ECIS 2023), Kristiansand, Norway.

Smith, R. C., Fors, V. Brodersen, M., Ebbesson, E., Lund, J. & Pink, S. (Forthcoming). *Sustainable human approaches for automated futures: Building participatory and design anthropological methodologies*. In: Fors, V., Berg. M. & Brodersen. M. (eds.), *De Gruyter Handbook of Automated Futures*. De Gruyter Publisher.

PhD, Lic and Master Thesis

Ebbesson, E. (forthcoming). *Beyond the Living Lab*. Licentiate Thesis, Halmstad University.

Eriksson, M. (2022). *Exploring future digitalised mobility adoption by utilising Lego as a mediating tool for research*. Master Thesis, Halmstad University. urn:nbn:se:hh:diva-47567

Raats, K. (forthcoming). *Unlaboratorising Trust*. PhD Thesis, Halmstad University.

Weberg, O. (2021). *Speculative Gaming Probes in Design: A study of participants' experiences*. Master Thesis, Halmstad University. urn:nbn:se:hh:diva-44758

Published by - PERSON

Drive Sweden is one of the Swedish government's seventeen Strategic Innovation Programs (SIPs) and consist of partners from academia, industry and society. 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