Final Report 2024

Mistra SAMS

Sustainable Accessibility
and Mobility Services

Information & contact

Mistra SAMS Sustainable Accessibility and Mobility Services Final Report 2024.

This final report highlights the research carried out in the Mistra SAMS program during 2017-2024 including scientific outcome and impact achieved together with partners.
Mistra SAMS is financed by Mistra, the Swedish Foundation for Strategic Environmental Research. The program has been hosted and managed by KTH Royal Institute of Technology in close cooperation with VTI, the Swedish National Road and Transport Research Institute.

Web: www.sams.kth.se, a selection of the content will be moved to www.mistrasams.mistraprograms.org at the end of the program.
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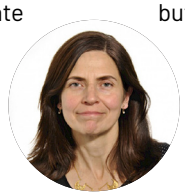
Chair's page

Pernilla Bergmark, Chair at Mistra SAMS.

It's time for Mistra SAMS final report and a look back in the rear-view mirror. Eight years is a long time for any programme – but looking back, the world in 2017 felt quite different; 2017 was pre-pandemic, the ink of the Paris Agreement was barely dry, the Sustainable Development Goals had recently been agreed, and the onset and escalation of wars were still unknown. Moreover, in Sweden, 7 out of 8 parliamentary parties agreed on a climate policy framework, consisting of a climate act, climate targets and a climate policy council. In retrospect, this was a time of hope and great expectations. The world of 2024 is a completely different story, with worldwide delivery on global agreements further away than ever, and environmental policies moving backwards rather than forward. What has not changed is the need to reduce emissions and transition the transport system to a sustainable, accessible server of society.



Pernilla Bergmark

During its search for a route to a climate-neutral and socially just transport system in metropolitan areas by 2030, Mistra SAMS has constantly had to adapt to this ever-changing world. A research programme focused on knowledge building, and with a high number of published scientific papers, the programme and its researchers have also focused on impact, policy influence and outreach through workshops, presentations, public debates with decision makers, and contributions to popular scientific publications.

A number of other characteristics have also been fundamental to the success of Mistra SAMS:

- It has continuously connected social and environmental perspectives.
- It has bridged traditional research with experimentation.
- It has combined system level thinking with concerns about practical details.
- It has combined local and international perspectives.
- It has combined different perspectives from partners in academia, industry and the public sector, as well as the perspective of its international expert panel.

As Mistra SAMS comes to an end, I wanted to take this opportunity to thank Mistra, The Swedish Foundation for Strategic Environmental Research, for its funding and advice, and all partners for their contributions over the years. I would also like to thank present and previous board members. Last but not least heartfelt thanks go to all the programme's researchers and especially to the programme leads, Anna and Karolina, for their perseverance and enthusiasm.

With the conclusion of the programme, I look forward to the ongoing synthesis of the knowledge obtained and developed during the last eight years. Although the challenges faced have not decreased over the last eight years, and the complexity of transforming the transport system is more evident than ever, Mistra SAMS insights show that a more just and sustainable transport system is indeed possible.

Mistra SAMS Board of Directors, from left to right: Karl-Henrik Johansson, Sara Bergendorff, Göran Finnveden, Anna Kramers (Director), Karolina Isaksson (Deputy Director), Christer Hårrskog, Pernilla Bergmark (Chair).
Inset: Anna Anund, Malin Lindgren, Karolina Skog.

Mistra SAMS developed an app called SAMSAS that was used by participants in the Living lab to book various kinds of bikes and transports.

Mistra SAMS

Mistra SAMS (Sustainable accessibility and mobility services) has been focused on building empirically grounded knowledge on how digitally supported services for accessibility and mobility, together with other measures, can contribute to achieving a just and climate neutral transport sector.
The program has been hosted and managed by KTH Royal Institute of Technology in close cooperation with VTI, Swedish National Road and Transport Research Institute.

Mistra SAMS was funded by Mistra, The Swedish Foundation for Strategic Environmental Research, The Swedish Transport Administration, Swedish Engineers Associations Environmental Fund, and ITRL (Integrated Transport Research Lab), and was a co-operation between partners from academia, industry and the public sector.

Partners

In addition to KTH and VTI, the following partners have been involved: Botkyrka Municipality, City of Malmö, City of Stockholm, Ericsson, Hertz, Itch, Lund University, Open Lab, Samtrafiken, Savantic, Scania, Smart Resenär, the Swedish knowledge center for public transport K2, The Swedish Taxi Association, Swedish Transport Administration, Karlstad University and Engineers of Sweden.

A transdisciplinary research programme

Mistra SAMS used a transdisciplinary approach, which involved both interdisciplinarity and a close collaboration with users and practitioners. The involved researchers came from engineering, behavioural design and social sciences. The program used multiple methodologies that included a living lab approach.

The living lab was based on collaboration and dialogue between researchers and stakeholders (e.g. entrepreneurs, service providers, transport and urban planners) and strong engagements with user groups, who functioned as "co-researchers" in a continuous innovation and knowledge building process.Together with the co-researchers, Mistra SAMS investigated how actors can facilitate societal transition to sustainable accessibility and mobility services.

Target groups for research results

Mistra SAMS aimed to provide knowledge useful for urban and regional actors responsible for transport, land use, and accessibility, as well as digital and transport infrastructure. The research results can also be relevant for actors with planning and decision-making responsibility on a national and European level.

The Mistra SAMS consortium meeting in Stockholm, May 2023.

Climate demands on transport systems

Mistra SAMS has used quantitative methods to model scenarios about what is necessary to achieve the climate target of 70 percent GHG reduction by 2030 relative to 2010.

By: Mattias Höjer, Jonas Åkerman and Hampus Berg Mårtensson

Mistra SAMS conducted two studies with slightly different scopes. The first study was focused on "What would car traffic look like if Sweden were to fulfil the climate target of 70 percent GHG reduction by 2030 relative to 2010?" The study took into account the emissions from car traffic itself, from the production of fuel, and from vehicle manufacturing. It tested different levels of electrification of the car fleet, car-sharing, biofuel use, and the efficiency of battery use. The results can be summarised in three parts: Firstly, an indication of a need for car traffic reduction by 20 – 50 percent if the climate target is to be reached. Secondly, in the high-electrification scenarios, the emissions from producing so many new cars would be of such a magnitude that it would require that vehicle production was allowed an increased share of total emissions, thus putting even greater demands on reducing emissions in other industries.Thirdly, the renewal of the car fleet requires large amounts of scrapping.

The Swedish transport system

The second study included all modes of transport and infrastructure and asked, "What would the Swedish transport system look like if climate targets were fulfilled?" To get a complete picture, it is essential not only to include emissions from transport in Sweden but also to include the emissions caused by Swedes' flying and the production of parts for vehicles and infrastructure that takes place outside Sweden. Again, there are three main conclusions. Firstly, looking only at territorial targets risks underestimating the mitigation challenge. Using this broader perspective, the Swedish transport system causes 40 percent of the total consumption-based GHG emissions.

Secondly, the study verifies that commuting by car is a very inefficient way to get from point A to point B. The low number of people in each car increases the importance of commuting by other means.

Thirdly, in a move towards electrification, indirect emissions become increasingly important. The reason for this is that the share of emissions from the production of vehicles and from investments in and management of transport infrastructure increases as the vehicle fleet is increasingly electrified.

Conclusions

The key elements for reaching GHG goals are:

- Efficient use of vehicles and transport infrastructure.
- Reduced commuting through location-independent work.
- Reduced (business) air travel.

Another conclusion is that the global competition for batteries will be substantial, due to high demand for the resources needed for batteries. In the high-electrification scenarios, Swedes' cars will demand some ten times more batteries per capita than the global average, when looking at projections for battery production. Moreover, it is the number of fossil fuel cars that is a challenge, rather than the percentage of fossil fuel cars. The key is to reduce the number of fossil cars by the time of the 2030-target, and this gets harder each year because cars have a typical life of more than 15 years.

Overall, it is very hard to envisage how the climate target can be achieved without car volume reductions.

Prototyping sustainable mobility

Decreasing the number of cars calls for massive changes in how we live, work and travel. To understand how to deal with the complexities of change and the conditions needed to support sustainability transitions, Mistra SAMS has, in its living labs, explored prototypes of what could be more sustainable alternatives in the future.

By: Mia Hesselgren

A design approach of building and testing small-scale prototypes and learning from carrying out such trials can be useful ways to learn about how to tackle complex problems. During Mistra SAMS phase 1, a co-working hub next to the Tullinge station was set up where citizens living in the area could work remotely instead of commuting to their workplaces. In phase 2, a living lab in Riksten was established. From November 2022 until September 2023, a mobility service system was tested by 14 citizens in Riksten who volunteered to try to reduce their number of car trips.

SAMSAS, a mobility service system

In Living Lab Riksten, the participants tried SAMSAS, a mobility service system with different mobility solutions, such as shared bikes, available on a digital platform which also provided feedback on the number of car trips the participating household had made during the month. The households set their individual car-trip reduction targets, and the app also provided mobility challenges, supporting them in trying new ways of travelling and doing things differently in their everyday lives.

SAMSAS was developed with a focus on sharing resources for the participating households. A bike shed was built for storing and charging the shared bikes, namely electric cargo bikes, electric bikes, and electric scooters. There were also bike leasing options available. Furthermore, SAMSAS included access to a shared workspace, the work hub at Tullinge station. Also, an on-demand shuttle service between Tullinge station and Riksten was added, where those working as colleagues in Riksten could book a shared ride.

The services were subsidised to the same extent as public transport and, as such, acted as a prototype of a potentially more sustainable future where mobility services would be part of public transport.

Design methods

Design methods were used to develop SAMSAS, and an iterative approach was used to test small-scale prototypes, such as asking the participants to try out the four shared electric bikes and then later in the process taking on board the findings of the trials to re-shape the solutions. Furthermore, the design methods used were collaborative, building knowledge in collaboration with those involved in providing and using the services. Additionally, the design methods included a systems approach focusing on a systemic perspective of how the technologies were integrated with people in their everyday social setting. Lastly, since SAMSAS was a prototype to test a future scenario, it was developed to reveal and illuminate existing structural challenges in current society rather than serving the Riksten citizens with well-functioning mobility solutions.

A learning focus

In Mistra SAMS we found that using design methods in living labs facilitates experimentation in everyday life. However, to do so successfully, it is essential to have a learning focus rather than aiming to define and test optimal solutions. This includes supporting living lab partners in their learning, which can be challenging to integrate into conventional development or planning processes. Furthermore, it is important for living lab research to be longitudinal since it takes time for people to try out and reflect on new things in their everyday lives and for new practices or habits to form.

About Riksten

Riksten provides a rich illustration of the typical mobility situation in many suburbs in metropolitan regions of Sweden. With about 3,000 citizens, it is a semi-urban residential area 25 kilometres south of Stockholm in the Botkyrka municipality. It is located about 3 km from the Tullinge commuter train station and has a local bus service connection.

Sustainable travel and accessibility for different groups

Is it possible for people to travel more sustainably in everyday life, with the support of mobility and accessibility services? Mistra SAMS set up a 'living lab' and studied this question for two different groups of people.

By: Malin Henriksson

In Living Lab Riksten, researchers set up experiments with two target groups. One group benefitted from high accessibility and had one or two cars in their household. Would it be possible for them to travel in a more environmentally friendly way? The second group comprised low-income workers working in the care sector. They experienced low accessibility because of inconvenient work hours and their dependency on public transport for getting to work. Would it be possible for them to travel in a more socially sustainable way, meaning that their well-being wasn't impaired by their dependency on infrequent public transport? Both groups expressed a will to travel more sustainably, but in different ways.

Mobility and accessibility services

The experiments ran over nine months, involving 12 persons in total. The first group were given access to an e-bike service, from which e-bikes could be booked and borrowed. The researchers also provided the participants with challenges relating to their travel behaviour, encouraging them to reduce car use and travel by bicycle instead, and encouraged reflections on citizenship. One example was to set monthly goals for their car use.

Although the participants expressed ideas, desires, and support for a vibrant local community with fewer cars, the researchers found that they prioritised an active lifestyle and a convenient everyday life over an ecologically sustainable one and that this demands a car. The researchers concluded that the convenience of cars needs to be reduced for individuals to make a change away from cars.

The SAMSAS ride

The second group were given access to a newly designed public transport service. The SAMSAS ride was an on-demand service over a fixed route, adapted to both work schedules and the commuter train timetable. The solution was successful; in effect it was a last-mile solution that made travel by public transport more convenient and therefore socially sustainable, meaning that the traveller's well-being was not compromised.

It is, however, unclear who will take the responsibility and pay for such a service in the future. Neither the employer, municipality, or public transport provider have indicated that the preconditions exist or that they have the motivation to run this type of service.

Key takeaways

To design and offer services that can tackle issues related to accessibility and mobility, in-depth knowledge regarding the local context, everyday practices, social circumstances, and preferences is needed. It will take time for new habits, practices, and norms to be set - the longer the time frame, the better. Also, public actors need to accept their responsibility for creating the preconditions for such services to come into existence.

Scaling-up new services

Services supporting a more carbon-neutral transport system, such as the sharing of cars, bikes, and spaces, are unusual in semi-urban areas. Mistra SAMS has explored some of the conditions needed to establish them.

By: Anna Kramers

Mistra SAMS has been cooperating with different actors in the Living Labs in Tullinge and Riksten and in a couple of Business Model labs (workshops).

Commercial service providers offering mobility and accessibility services that could support a shift towards greener mobility, such as: electric bikes, e-scoters, goods delivery, and co-working spaces; as well as public actors from the local, regional, and national levels were invited to the workshops. Together, they explored opportunities and challenges in respect of the conditions needed to enable the development and adoption of shared mobility services.

Insights from the co-working hub in Tullinge

During the Living Lab experiment in Tullinge, Mistra SAMS identified the legal limits of collaboration and promotion between different actors involved in the co-working hub. A municipality must refrain from managing the co-working hub because this would compete with private initiatives. They also learned that public organisations are not set up to develop new services, which demands new cross-departmental working processes within the municipal administration.
The project received several proposals from the participants:

- Define the local work hub as a necessary infrastructure to legitimise private actors managing the hub's development, in line with other societal services such as bicycle lanes and libraries.
- Highlight and promote the societal benefits of less traffic, more walking and biking, and lively and secure neighbourhoods.
- Extend cooperation with private actors, such as with companies who have employees with long commuting distances.
- Select companies with different focuses, such as local property owners and mobility providers, who can cooperate and build new combined solutions.

Challenges for mobility services

During the workshops, several challenges for mobility service providers were identified:

- One common situation for many service providers is getting access to private and public land for development. Working with property owners or using procurement processes to set land-use requirements in new establishments could be alternatives.
- Analysis of existing data covering travel-habit patterns and demographic data is needed to optimise the localisation of services. A municipality is not required to share this data but can point out places where the services would fit in the local context.
- A legal definition of services such as car-sharing and co-working would be valuable in creating a common understanding.

Digital platform with aggregated services

Mistra SAMS also proposed and tested a digital platform where users could access a palette of services. The platform would be an interface where complementary services are provided, such as bike/car-sharing and public transport, and enabling cooperation between service providers. Several opportunities were identified by the various actors:

- The financing of a digital platform would benefit from being co-financed by the public and private sectors to target sustainable mobility.
- The platform could also use rules that subsidise choices that are aimed at sustainability.
- Multimodal journeys need reliable services based on data sharing. Regulations and open APIs (Application Program Interface) are necessary.

Experiments and the role of public actors

Experiments in urban and semi-urban settings are popular within the field of transport and mobility. But what is the role of public actors, and how can municipal learning occur?

By: Claus Hedegaard Sørensen and Kelsey Oldbury

Researchers often talk about "experimental governance", a term broadly characterised by a temporary organisation comprising of public, private, and research organisations where new technologies are often tested. As a research-led programme with ambitions to explore and develop public actor capacity building via experimentation, Mistra SAMS is part of the experimental governance landscape.

Municipal learning

Experimentation is often based upon normative ambitions to contribute to societal change, typically through interventions, such as living labs. Mistra SAMS has studied the role of public actors in experimentation based on previous literature, which argues that more knowledge is needed about municipal learning as a crucial link between experimentation and existing planning and policy processes. The researchers were specifically interested in how municipal learning can occur.

Five recommendations

The researchers have five recommendations for public actors considering participating in experimentation:

Put technology in the back seat. Responses to the significant challenges the transport and mobility sector faces need to go beyond technological fixes. Social, organisational, and behavioural changes are needed. The role of new technologies should be motivated in relation to the broader organisational, social, and cultural changes needed.

See experimentation as one tool amongst many. Experiments offer a forum to try out new solutions and to learn. However, there is still a fundamental need for established planning processes to govern transport and mobility planning from strategy to implementation. New experimental solutions and initiatives need to be viewed in light of the existing difficulties in planning for sustainable accessibility and mobility.

Engage actively to secure learning. Learning from experimentation concerns how experiments link to existing planning processes, for example, how experimentation seeks to integrate with local and institutional structures and goals. This requires engagement and work, both by researchers and municipal representatives. Forums and processes can be established alongside a living lab to ensure that learning can be a process that happens throughout experimentation.

Put the context at the forefront. Experiments can be about transferring an idea from one context to another. However, this can mean overlooking how an experiment is designed to fit a specific local context. Regarding the Mistra SAMS project, the Living Lab in Riksten in Botkyrka municipality is different to many typical experimental initiatives in flagship projects in central urban areas. It is therefore important to consider what kind of experiment is most relevant to a specific location.

Establish clear goals for public participation. Public participation can be difficult to achieve, and citizen roles can be defined in many ways. Swedish municipalities have established forums for contact and dialogue with citizens but for municipalities participating in experiments, it is still essential to consider what citizen participation means in a particular case. Experimental settings can offer new methods to involve citizens and generate new insights into mobility practices. It is also important to consider what role the municipality itself has in shaping the experiment and communication with the citizens involved.

Experiments are not silver bullets. If participating in experimentation, be ready to take an active role when it comes to learning and building knowledge in experimental forums.

Political leadership for sustainable mobility transformations

What does it take for political leadership to exert pressure in favour of sustainable mobility transformations? Researchers in Mistra SAMS have investigated this in an interview-study with local politicians.

By: Karolina Isaksson and Karin Thoresson

Issues related to sustainable mobility are often conflict-ridden. This makes politicians key actors in promoting transformative change. Up until now there have only been a few studies focussing on the role of politicians in sustainable mobility transformations, especially in "ordinary" policy and planning contexts. This was the background to the pilot study of local political leadership carried out as part of Mistra SAMS in 2024. For the purposes of the study, political leadership was defined as the capacity to take an active role, creating leeway for action and mobilising political and public support for measures that can be expected to be controversial.

The study

Interviews were carried out with ten local politicians from Swedish municipalities of various sizes in a range of locations. The politicians were selected based upon their experience in implementing initiatives that challenge the role of the car. Typical examples are restrictive parking rules, pricing, and changed land use, for instance turning roads and parking spaces into parks, playing grounds, or infrastructure for walking, cycling or public transport.

Relationships

The interviews provided insights regarding the relational dimensions of political leadership. For instance, relationships with other politicians and civil servants in the local administration, as well as local interest groups, business and NGOs.

Politicians also interact a lot with local residents. In issues related to sustainable mobility, some groups quickly raise their voices, while other groups remain silent. Politicians often feel pressure from both sides: those opposing restrictions on car traffic and those wanting to see more walking, cycling and public transport initiatives.

The relationship with their administrative staff is a relationship of significant importance. Politicians are highly dependent on their staff's professional knowledge, analytical capacity and their provision of sound support for decision-making.

Navigating conflicts

For politicians, conflicts come with the job. According to the interviewees, conflicts can be meaningful if they help clarify political values and priorities.

Several among the politicians referred to climate change as a tricky issue to work with because it feels abstract compared to other key issues in focus at the local level. Several of the interviewed politicians explain how they use other framings such as attractive and healthy cities, and are careful to focus as much as possible on the futures that can be created with more sustainable mobility systems. In doing so, they have found it helpful to focus on specific locations in the local environment to demonstrate possible outcomes of changed mobility politics. A typical example is removing parking spaces and then finding other ways to use the same area.

To summarize, political leadership

- is deeply dependent on relationships
- requires a constant navigation between conflict and collaboration
- depends on robust support from skilled administrative staff
- requires political creativity, and openness to imagining and trying new pathways.

In the following pages, a selection of Mistra SAMS research is clustered into the themes accessibility, experimentation and future images.

Accessibility

Agencies sharing offices

By: Peter Arnfalk

This Mistra SAMS project has evaluated a "Public Co-working" initiative in which Swedish public agencies are piloting office space sharing to address post-pandemic challenges. As a result of increased teleworking and remote recruitment, it is estimated that over 100,000 public office spaces remain vacant, costing taxpayers SEK 11 billion annually and consuming the energy equivalent of 160,000 households. The pilot project aims to explore whether a network of shared public offices can make public employment more attractive, foster collaboration, and alleviate office space inefficiencies.

Four agencies sharing offices

The pilot project involves four public agencies sharing offices, and aims to determine the benefits in terms of recruitment, employee retention, and knowledge sharing. This study is evaluating two aspects: first, the pilot project's success in meeting its own objectives, and second, the environmental sustainability implications of such sharing. Critical questions include balancing inter-agency collaboration with security needs and assessing carbon emissions linked to commuting and business travelling.

Impacts

The evaluation analysed the impacts on passenger transport, resource use, energy, and social dynamics, and aimed to document findings for wider use. Drawing on insights from related initiatives and international examples, the pilot project contributes to the understanding of how to develop a more sustainable, nationwide network of public co-working spaces.

Interagency collaboration

Through conversations on public co-working, the study has identified dilemmas on how to balance the aims of interagency collaboration, knowledge exchange and social interaction with the need for security. Another question discussed was an acceptable level of CO2 emissions if workers need to meet with colleagues at their 'own' office - on average 380 km away.

The co-working space in Tullinge.

Perceived accessibility: unveiling inequalities in transport justice

By: Lars E Olsson and Katrin Lättman

Within this project, transport justice has been examine through the concept of perceived accessibility, focusing on how individuals experience access to daily activities and how these experiences can be captured using a proposed tool, the perceived accessibility scale (PAC). Findings highlight that the PAC can be used to identify inequalities within geographical areas where, objectively, residents or travellers might be expected to have the same accessibility. Up until now, gender- and age-based inequalities have in particular been observed, with women and younger individuals perceiving lower accessibility and travel satisfaction because of greater reliance on public transport. The research suggests that improving public transport quality and reducing reliance on cars can enhance transport justice in our study areas. Additionally, creating local activity hubs could reduce the need for frequent travel and promote more equitable transportation systems.

Co-creation and protective spaces - dialogues with municipalities and service providers

By: Katarina Larsen

In this research we raise questions about how local planning actors perceive barriers to and opportunities for change that would enable development and adoption of mobility services. Workshops with municipalities and mobility service providers were hosted by KTH (2021-22 and 2024) focusing on the expectations and experience from introducing co-working spaces and developing mobility services.

Regulatory hurdles

The workshop participants discussed how to create conditions for learning about and overcoming regulatory hurdles. These hurdles can limit transformation to changes within an existing selection environment (promoting existing mobility services) or create spaces for learning leading to novel mobility service innovations in an altered selection environment.

Empowering processes

In this context, empowering processes are relevant to understanding the roles of municipalities and service providers, where stepwise changes (fit-and-conform) within *unchanged* selection environments are contrasted with more radical processes (stretch-and-transform) which contribute to *changes* in mainstream selection environments in ways leading to a path-breaking niche innovation.

Challenges

Some challenges related to the mandate of the local municipality to pilot solutions not accessible for all residents and at the same time aim for integration in operational practices. This thereby raised questions about new mandates for municipalities (creating infrastructures for novel mobility services); how new spaces for learning can be created between service-providers and users (mediated by platforms); and the potential for learning from pilot projects despite fragmented processes and short time-horizons in order to better understand perspectives from the point of view of service providers and municipalities and the practices they have put in place to transform, develop and adopt novel mobility services.

Challenges arising from public transport timetabling in semi-urban areas

By: Malin Henriksson and Chiara Vitrano

In Mistra SAMS, we have seen that current public transport provision makes it difficult for people working or living in semi-urban areas to rely on public transport for commuting. This issue is particularly pronounced for those who need to travel during the night or off-peak periods. For these groups, the spatial provision of public transport (i.e. *where* the bus goes) and timetabling (i.e. *when* the bus goes) often do not meet their mobility needs.

In this strategic project, we investigated timetable planning to understand how frequencies and departures from stations or stops at different times of the day, week, and year are decided upon. We interviewed six planners from three regional public transport authorities to discover how they perceive the practice of timetable planning and its possible social, spatial, and temporal consequences.

The study shows that the needs of groups outside the main traffic flows are often not considered in the timetable planning process. Public transport provision is primarily focused on finding the routes and times at which lots of people travel. Consequently, it is difficult to integrate social sustainability goals and social impact assessments into decisions about timetabling.

We also identified a shift in focus from proximity (to stops and stations) to speed, with greater emphasis on reducing travel times. Prioritising speed means that people may have to walk or cycle longer distances to reach a stop or station but once there, they will travel more quickly. Longer distances can make it more difficult for people, especially those with impairments or those who travel with dependents, to reach and use public transport.

The practice of timetable planning is likely to change dramatically in the near and distant future where the development of demand-responsive public transport and automation is concerned, just what social consequences these changes will entail remains open and will also be a result from the political will to make difficult choices.

Experimenting

Navigating citizen roles at the border of Living Labs: public actor and researcher narratives

By: Kelsey Oldbury and Malin Henriksson

One of the central challenges when working with Living Labs (LL) is how they connect to formal planning structures and practices and embed relevant learnings. In a Mistra SAMS workshop series, we explored the relationship between a LL, public actor responsibilities, and citizen roles. Citizens can have different roles in participatory processes, from user and consumer roles, through to participation in decision-making. The workshops provided a forum to discuss how public actors at the municipal level view citizen roles in planning for sustainable mobility futures, and also acted as an opportunity to discuss new methods for citizen participation and to discuss findings from LL Riksten.

An analysis of the series reveals no single dominant framing of citizen roles, rather it highlights that a spectrum of narratives about citizen roles exists in tandem. Nevertheless, citizens are seldom conceived of as taking part in the final stages of decision-making processes, even if their input is regarded as important. Further, the findings show that a workshop series can be used to extend the scope of LL methodologies and actively engage public actors. LL-adjacent workshops can open up a window on the complexities of ordinary transport and mobility planning processes, and provide a space in which researchers can work actively with embedded learning from LLs.

Municipalities and experimentation

By: Jean Ryan and Kelsey Oldbury

The magnitude of the challenge society faces in reducing net emissions is largely recognised by public actors. However, public actors grapple with traditional planning processes and conventional institutional settings. These processes and settings are largely characterised by the fact that they have little room for manoeuvre with respect to the pursuit of policies that would significantly contribute to net emission reductions. This "room for manoeuvre" is often referred to as "transformative capacity".

This study challenges the conceptualisation of experimentation as a means of building transformative capacity and thus contributing to an accelerated sustainable mobility transition. This was done by analysing the links between experimentation as an activity, transformative capacity among and between key actors, and the acceleration (if any) of the sustainable mobility transition. These concepts and links were decomposed by drawing on experience from involvement in the Mistra SAMS programme, insights from interviews with key actors and experience from ancillary activities.

The study found that the main outcome of the experimentation and ancillary activities could indeed be common learning. Experimentation can mean more permanent institutional changes but may not bring about the larger and more immediate changes that are likely needed. We propose that if experimentation is here to stay, transformative capacity can be conceptualised as a transformation-based experimentalist approach to planning, and, moreover, an acceptance of being in a state of permanent experimentation. The implications of transformative research practices with the inherent normative ambitions of making or contributing to transformation warrant further investigation.

Catalytic policy instruments enhancing policy legitimacy for less and slower mobility

By: Claus Hedegaard Sørensen, Malin Henriksson and Jens Portinson Hylander

To avoid exceeding planetary boundaries, significant societal transformations are needed. Where personal transport is concerned, necessary changes will for many people imply less and slower mobility compared to the present. That, however, contradicts the hyper-mobility paradigm characterising current societies, and it might be difficult to gain legitimacy for such policies. In a study by SAMS researchers Claus Hedegaard Sørensen, Malin Henriksson and Jens Portinson Hylander, the concept of *catalytic policy instruments, i.e.,* policy instruments particularly suited to improving the legitimacy of policies for less and slower mobility was introduced. Three examples are public participation, visioning, and experimentation. Each of these has strengths and weaknesses, and some preconditions have to be fulfilled for the instrument to be catalytic. It is important to consider also the relevance of the issue of legitimacy relative to other barriers against providing for less and slower mobility. Whilst not quite an example of Columbus's Egg, the strategic and tactical use of catalytic policy instruments is of importance in building a counter-hegemonic alternative to our existing unsustainable high mobility society.

Future images

Sustainable transport 2035

By: Jonas Åkerman, Mattias Höjer, Hampus Mårtensson

The aim of this study was to explore transport futures in 2035 assuming GHG emissions in line with the Paris agreement and a consumption-based lifecycle perspective. With this scope total Swedish transport emissions become 130 % higher than direct emissions from domestic transport (domestic aviation excluded) which constitute the scope of the Swedish target of reducing transport emissions by 70% until 2030.

Two scenarios for 2035 were explored: one that reflects a continuation of existing trends with growing volumes of road and air transport, and one that is aligned with the Paris agreement. The analysed case was transport generated by the consumption pattern of the Swedish population. Although several types of measures were included, special focus was on the potential of (1) digitalisation to avoid travel through location-independent work, (2) digital meetings to avoid business travel and (3) mobility services.

A key result of the analysis was that with the current distribution of work categories - but with much more flexible organisation - daily commuting by car could be reduced by 30%, which would on its own reduce total car kilometres by 13%.

Another key change needed to achieve the set climate target was to reduce air travel by 45%, which could be achieved through improved rail services, digital meetings and appropriate pricing. Finally, greater utilisation of vehicles and infrastructure would be important in limiting indirect emissions associated with vehicles and infrastructure.

The role of future images in transformation processes - a workshop series about a future with less cars

By: Fredrik Johansson, Mattias Höjer, Malin Henriksson, Jens Evaldsson

Involving people in conversations about climate issues can lead to the legitimisation of measures that limit car and air travel. Perhaps the question of what visions people have for future travel can help people imagine new ways of travelling where the impact on the climate is limited but a good quality of life is still possible. In the autumn of 2024, workshops were conducted with citizens in three Swedish municipalities where different approaches to changes in transition and mobility may more or less drastically affect their future. Participants were introduced to the municipality's long-term plans as well as research on the need for fewer car trips, and hopefully were also inspired by an artwork aimed at encouraging them to think about future travel.

One conclusion from the workshops is that none of the participants questioned the premise that car travel needs to decrease drastically by 2030. Despite the participants' engagement in the climate issue, it did not mean they lived car-free lives today. On the contrary, almost all participants owned a car. The participants rarely questioned the need to travel in itself. They considered their current activities as both necessary and desirable – and did not question whether they will be feasible in a future with radically reduced car travel. Instead, they discussed how today's car trips could be replaced with more sustainable ways of traveling, such as by bicycle or public transport.

For planners and decision-makers who want to create conditions for more sustainable travel based on various approaches, the issue of leisure travel is one that it is important to address going forward. Will it be possible to get to the beach or nature reserve without a car? Are there spaces for recreation nearby? Can spaces currently used for cars be repurposed for recreation?

In summary, the workshop series encouraged engaging conversations about future travel with the participants feeling both seen and heard. The artwork may have contributed to these lively discussions because it created a conducive atmosphere and inspired participants to consider the issues from a different perspective.

Picture from the film "Reflektioner & transformationer" produced in 2024 by Jens Evaldsson and Mattias Höjer.

Collaboration with Mistra Sustainable Consumption

Exploring the intersection between mobility and sustainable consumption in three specific projects.

Local mobility markets

– how experimentation creates new neighbourhood-based mobility offerings.

By: Erika Styre

The doctoral project, co-funded by Mistra SAMS and Mistra Sustainable Consumption, addresses questions related to the necessary conditions for making digital-enabled mobility services an integral part of the broader mobility system. It focuses mainly on the roles and business models of private actors.

While it is commonly agreed that shared mobility is used as an umbrella term that includes a diverse set of services characterising urban mobility, a deeper understanding of the services and their potential is still lacking. The research attempts to illustrate the systemic disruption associated with these services and the implications for the transition of the transport system depending on the type of service. For example, ride-hailing has been associated with changes in the taxi industry, user preferences and acceptance, while micro-mobility has been challenging the traditional distribution and governance of public spaces. Services are also closely interdependent with the existing policies and regulations, which shape specific conditions by creating opportunities or limitations for the service's operations and their sustainability. Therefore, the research challenges laissez-faire ideas about the market—urban mobility markets in particular—and the role of public and private actors. Predominantly owned and operated by private actors, shared mobility services lie in between private ambitions and public needs to reduce private car dependency. By identifying and aligning the interests between private service providers and public authorities, shared mobility services have the potential to be harnessed to support the transition towards a transport-efficient society.

In the next step, the doctoral project explores questions related to the creation of mobility markets through innovative solutions in underserved areas, such as suburban neighbourhoods, the role these markets play in the mobility system, collective imaginaries shaping mobility practices and possibly even trade-offs and exnovations to achieve the required transformation.

Indirect rebound effects from increased use of ICT

By: Mattias Lehner

Indirect rebound effects from increased use of ICT is a research project led by Dr Matthias Lehner (Lund University), in collaboration with Ericsson AB that is funded from the Mistra SAMS strategic reserve. The project's aim is to gain a better understanding of the indirect impact of increased (compared to before the Covid-19 pandemic) use of ICT on lifestyle carbon emissions.

The project conducted a) a systematic literature review, and b) a small-scale in-depth study of 25 individuals' ICT use, spending patterns, and time use patterns to identify effects of increased ICT use. The results of the systematic literature review show that by far the biggest impact comes from changed travel patterns. Due to increased teleworking, people commute less but travel somewhat more for leisure. They are also more likely to move further away from urban areas, increasing dependency on travel by car. Increased ICT use also increases time spent at home.

The analysis of the empirical data is still ongoing, particularly due to a delay in access to the collected transaction data. The collected time diaries of the participants suggest that increased ICT use leads to significant unplanned loss of productive time/work time because of increased time spent on social media. This increase in screen time, however, first and foremost crowds out low-carbon behaviours such as time spent outdoors, reading, or idle time. Participants also drastically underestimated their screen time. This might imply further crowding out of behaviour that individuals are not aware of, including potentially some higher-impact behaviours. The analysis of transaction data will help to explain whether further crowding out takes place.

This study also has a natural continuation in the Mistra Sustainable Consumption project, in which Dr Matthias Lehner and Dr David Andersson (Chalmers) are currently developing a survey to test the conclusions from this study with a large, statistically significant sample.

Consumption-based greenhouse gas emissions accounting

By: Eskil Engström

The licentiate project, co-funded by Mistra SAMS and Mistra Sustainable Consumption, investigates the policy nexus associated with consumption-based greenhouse gas (GHG) emissions accounting (CBA). CBA provides a complementary perspective by attributing emissions embedded in trade—such as those from carmaking—to the consuming country. Additionally, CBA includes emissions from international shipping and aviation, which are not accounted for in territorial GHG statistics. In the project's first year, additional funding was secured from the Nordic Council of Ministers, enabling a comprehensive mapping and a so-called Policy Delphi method to analyse Nordic policy options to reduce consumption-based emissions. This research will also be disseminated in an academic article. Key findings suggest that numerous consumption-oriented policies are already in place across the Nordic countries, with potential for further strengthening of the policies. Harmonising carbon taxes across borders, for example, could mitigate tax avoidance behaviour such as cross-border travel for cheaper flights or fuel. Current and future research within the project focuses on the Swedish Environmental Objectives Committee's 2022 proposal for a national CBA emissions target, which includes incorporating parts of the emissions from international shipping and aviation into Sweden's territorial climate targets. This proposal represents an innovative approach to climate policy; however, the current government has shown reluctance to implement this cross-party agreement. This raises critical questions about how Sweden and other countries intend to address or sidestep responsibility for emissions generated beyond their borders due to their own country's domestic consumption.

Internationalization

ISAP – International Scientific Advisory Panel

The Mistra SAMS international scientific advisory panel comprised senior researchers internationally recognized as outstanding academic leaders in core fields directly relevant to Mistra SAMS. The task of this panel has been to review, guide, and challenge the work and progress of the program on an ongoing basis. The panel has strengthened the program's academic excellence by bringing state-of-the-art knowledge and research results and providing explicitly comparative perspectives and policy experiences about "best practices and lessons learned" in their respective areas.
Mistra SAMS ISAP included the following persons:

Phase 1

- Professor Anna Sparrman, Linköpings Universitet
- Professor David Banister, Oxford University
- Professor Bert van Wee, Delft University of Technology
- Professor Elizabeth Deakin, University of California
- Professor Simon Marvin, University of Sheffield University

Phase 2

- Professor Marianne Ryghaug, Norwegian University of Science and Technology (NTNU), Trondheim, Norway
- Professor Sampsa Hyysalo, Aalto University School of Art, Design and Architecture, Helsinki, Finland
- Dr. Jacqueline Klopp, Columbia University, New York, USA
- Professor Glenn Lyons, University of the West of England (UWE), Bristol, England

ISAP phase 1: David, Bert, Anna, Elizabeth, and Simon.

ISAP phase 2: Marianne, Sampsa, Jaqueline, and Glenn.

IYR – International Young Researchers

Mistra SAMS has invited young researchers in their early career stages to apply for grants for short-term research visits at KTH, Stockholm, or VTI or for PhD students in Mistra SAMS projects to visit International Universities. The initiative has resulted in joint articles and new research collaborations.
The researchers who have visited Mistra SAMS are the following: Jan Bieser, University of Zurich; Fabio Hirschhorn, TU Delft; Ioanna Moscholidou, University of Leeds; Mohamed Jama Mohamed, Edinburgh Napier University; and Johanna Pohl, TU Berlin.

Mistra SAMS researchers visiting international universities: Tina Ringenson, Columbia University, Liridona Sopjani, Berkley University, Fredrik Johansson, Barcelona University, Hampus Mårtensson, Tokyo University.

Mistra SAMS on study trip to Copenhagen in October 2023.

Mistra SAMS study trips to capital cities in the Nordics

During the Mistra SAMS program period, there were three study trips to the capital cities of our neighboring countries. In October 2018, a study trip to Helsinki was made to gather knowledge and make connections for future research projects. Helsinki was the first Nordic country that started to transform its transport legislation to enable the development of new integrated mobility services in their transport sector. At the study trip, Mistra SAMS researchers gained new insights about how two of the then leading service developers (Whim and Kyyti) had framed their concepts for mobility as a service. This was supplemented with insights into how the City of Helsinki, the Transport and Communications Agency (Traficom), and leading national politicians reasoned about the potential of digitalization in the mobility sector. Meetings were also arranged with researchers at VTT (Technical Research Centre of Finland) and the University of Aalto.

Oslo and car-free cities

The second study trip went to Oslo in May 2022. During the trip, TØI (Transportøkonomisk Institutt) was visited and shared their insights from ongoing research on measures for car-free cities, measures for sustainable transport, and regulation of new shared mobility services. At the regional public transport organization Ruter, department of radical innovations, results from pilots were presented where Ruter developed public transport services by means of digitalization and extended service offerings. In addition, a visit to Bymiljøetaten at Oslo municipality was made. They shared their experiences in regulating and monitoring micro-mobility services and implementing measures for reduced car use in Oslo.

Lund, Copenhagen and bicycling

The third study trip went to Lund and Copenhagen in October 2023. During this trip, Mistra SAMS researchers gained insights and inspiration on urban sustainable mobility and accessibility, specifically focusing on bicycling.
A joint bike ride took us from Søborg via Nørreport down to Sydhavnen. The visit to the City Hall showed how Copenhagen is planning for sustainable travel and infrastructure with public transport, bicycling and reduced car traffic, as well as methods for citizen involvement and how the distribution of different modes of transport looks like in the city. A visit to Rejseplanen & Rejsekortet A/S gave new insights into how Denmark organizes public transport with a unified travel card for the whole country and how they reflect on travelers who, for various reasons, will not be connected online to use digital services. On this trip, there was also a knowledge exchange with researchers at Aalborg University.

Outreach and societal impact

Outreach and societal impact have been key features of Mistra SAMS. Different types of outreach events have been listed in detail in the previous annual reports (see www.mistrasams.mistraprograms.org). Key activities have involved:

Consortium meetings, workshops and living labs
Mistra SAMS has from the start had a close collaboration with partners and stakeholders from the industry, the public sector, and related research environments. The annual consortium meetings have been important events for discussing findings and identifying ways to link these to other activities going on among partner organizations. The living labs have also offered many opportunities for learning and knowledge exchange among researchers, citizens, service providers, and public and private organizations.

Policy oriented conferences and seminars
Researchers from Mistra SAMS have participated in many types of public events to present findings and discuss issues related to sustainable accessibility and mobility together with decision makers and experts, as well as representatives from business organizations and civil society. Mistra SAMS have arranged and participated in several seminars at the Almedalen week over the years and hosted a seminar at the Järva political week in 2019. Researchers from the program have been invited as speakers and panelists at many sector-specific events focusing on sustainable transport and mobility, digitalization, land use planning, climate policy etc.

Academic lectures and conferences
Mistra SAMS has continuously arranged academic lectures and seminars to highlight key issues and present findings related to sustainable accessibility and mobility. Some of these have been arranged with the members of our international scientific advisory panel (ISAP) and other invited guests. Since the second half of the first program period, we have arranged so-called Kitchen talks to communicate Mistra SAMS results to a wide audience. Mistra SAMS researchers have also presented findings at many different types of academic conferences throughout the program period.

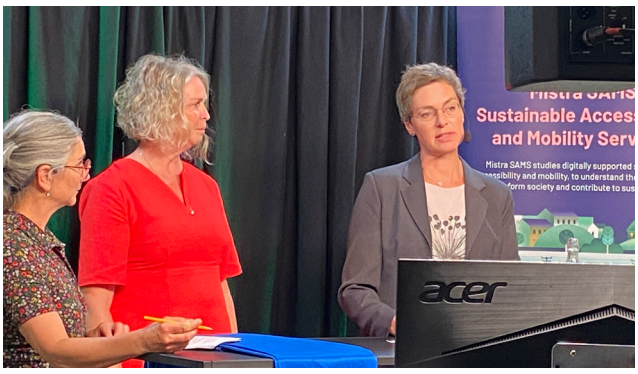
Reaching out to decision-makers in Sweden and abroad
There have been recurring occasions when researchers from Mistra SAMS have participated in special events for decision-makers and planners/experts. Sometimes at the European (EU) level, and sometimes at the national, regional and local levels in Sweden. Mistra SAMS has invited planners and politicians to study visits at the living labs, and arranged targeted workshops and seminars to discuss possible pathways related to the need for a sustainable transformation of the transport system. In the first program phase (2017-2020), the Minister for Housing and Finance, Per Bolund, visited the Mistra SAMS work hub in Tullinge. In the second program phase (2021-2024), local politicians from the Stockholm area visited the living lab in Riksten. In May 2023, results from the program was presented at the large ITF (International transport forum) summit in Leipzig. As part of the study trips to Helsinki, Oslo and Copenhagen, we have also arranged conversations and knowledge exchange activities with decision makers from public and private organizations, as well as with other research environments.

Extensive media coverage
Results and insights from Mistra SAMS have been continuously communicated to a wide audience by means of op-eds, opinion pieces, media interviews etc. Researchers from the program have participated in the most established news channels on national TV and radio on several occasions, as

well as in local media and podcasts. Over the years, researchers in Mistra SAMS have managed to publish more than 15 opinion pieces in the Swedish national media – several of these in the largest morning papers. The media coverage is listed in the annual reports (see www.mistrasams.mistraprograms.org). The programme has also produced several short films with insights from the living labs.

Final conferences

The programme's final conferences from phase 1 and phase 2 have been important opportunities for outreach and dialogue with a broad range of stakeholders. Both of these conferences have been arranged digitally and are available via www.mistrasams.mistraprograms.org.



Hanna Zetterberg, Anna Kramers and Karolina Isaksson presents at Mistra SAMS final digital conference in September, 2024. The event gathered around 80 participants. The presentations can be accessed via the web (see page 2 in this report).

Mistra SAMS' Hampus Berg Mårtensson and Anna Kramers speaks at Dagens Industri's Stora Mobiltetsdagen in October, 2024. Fotograf: Rebecka Rynefelt.

Examples of media coverage 2024:

The climate impact of flying is too great - concluding remark in air travel tax debate. Jonas Åkerman, Mattias Höjer and Jörgen Larsson in SvD Debatt.

The government steals sweets from the toddlers of the future. Mattias Höjer and Göran Finnveden, in DN Debatt.

Why Swedes fly less. Jonas Åkerman in SVT.

Digital meetings instead of air travel. Jonas Åkerman, Mattias Höjer and Jörgen Larsson in SvD.

Sweden needs a target for reduced car traffic. Karolina Isaksson et al in SvD Debatt.

Electrification is not enough. Karolina Isaksson et al in SvD Debatt.

Expensive public transport makes Sweden less fair. Malin Henriksson, Fredrik Johansson, Greger Henriksson et al in Aftonbladet debatt

Criticism of the Swedish Transport Administration's plan - based on a 25 percent increase in car traffic. Karolina Isaksson is interviewed in DN article.

Leading experts and representatives from civil society, business, the public sector and academia gathered for a two-day workshop arranged by Mistra SAMS.

Growing LinkedIn page

Mistra SAMS presence on LinkedIn increases our outreach. At the beginning of 2024 we had around 365 LinkedIn followers and by the end that number had risen to 476. Among them are urban planners, traffic planners, environment strategists, and leaders within sustainable mobility.

Voices from Mistra SAMS partners

Mistra SAMS asked some of our partners a few questions. Here are their views of the program.

What are the most important insights from Mistra SAMS for your organization?
Botkyrka Municipality: Living labs requires a local engagement and an awareness that it takes time and is complex. Having the right network and participants in the project is crucial. Commitment is often tied to specific individuals – if a key person leaves, it impacts the chances of successful outcome. We have appreciated being part of the entire journey in this project.
The Swedish Transport Administration: We have had positive experiences with Living Labs, and cooperating with partners in the academy and practitioners has been instructive.
Ericsson: I liked the avoid–shift–improve as a framework. Change is not that simple and requires buy-in from employers and staff. It is a complex network of actors within mobility that must work together.
SmartResenär: We have gained many valuable insights from participating in the research program. The most important one is that there is a huge discrepancy between demand and supply when it comes to the relevance, usability, and attractiveness of new, sustainable mobility options and practices. This discrepancy must be overcome before we can hope to inspire, induce, and facilitate a behavioral change with fancy innovations like MaaS (Mobility-as-a service).

What was the most unexpected?
Botkyrka Municipality: Tullinge Job Hub! It got off to a good start. Then came major external changes with COVID. After COVID, it was challenging to transition from a Living lab to a regular operation due to employers' increased acceptance of remote work. This made it difficult to make the business model work. The external changes have influenced our thinking around digital commuting and non-commuting related to workplaces and remote work. Perspectives on space requirements, how we plan future business areas, offices, housing, and where people choose to live have evolved. These considerations are part of our ongoing work with a new comprehensive plan.
The Swedish Transport Administration: The COVID pandemic changed the conditions considerably. We adjusted quickly, both in this program and in society at large.
Ericsson: It was unexpected that not more people wanted to work at the job hub in Tullinge, but that was also due to the pandemic.
SmartResenär: The most unexpected was the level of interest, commitment, and feedback from the residents participating as "co-researchers" in the living lab. In many cases, they seemed surprised and grateful that someone at all was asking their opinion in these matters, offering a channel to express their concerns and suggestions, and that someone was providing a way for them to engage and contribute. Inviting people to participate and providing a welcoming environment to share their specific situations, challenges, and ideas could not only facilitate the co-creation of relevant and realistic local-level measures. It could also be crucial for gaining and maintaining grass-root engagement for these issues in the first place.

What future trends do you see that could impact how the results from the program can be taken forward?
Botkyrka Municipality: To make an impact in a politically governed organization, we rely on getting our message across about the importance of more sustainable mobility. Recently, we have found it more challenging to gain support for prioritizing public transportation, walking, and cycling.
In the dialogue with decision-makers, we need a different type of argument. Fact alone are no longer sufficient. We need a deeper understanding of the drivers and other factors that can support decision-makers to make necessary choices. Collaboration with academia is therefore crucial for us at the municipal level.
The Swedish Transport Administration: There are several possible developments: More powerful means of control to achieve the climate goals, rapid leaps within digitization and AI, an even sharper security situation, and a potential renaissance for the physical meeting, as people no longer trust information, images, films, and podcasts via the internet.
Ericsson: The internationalization of business work-life and place-independent recruitment, policies from the EU, and self-driving cars.
SmartResenär: Public actors, suppliers, and other market actors participating in the "sustainable mobility ecosystem" could improve the quality and applicability of new sustainable mobility practices by leveraging co-creation with local citizen participation.


Susanne Pettersson, Community planner, Botkyrka Municipality


Håkan Göranson, founder and developer of SmartResenär in Sverige.


Patrik Hedlund, Master researcher, Ericsson.


Einar Tufvesson, Strategist, The Swedish Transport Administration.

Programme directors' page

Anna Kramers and Karolina Isaksson, Directors at Mistra SAMS.

After eight years of exciting, inspiring, and sometimes challenging work, Mistra SAMS has come to an end. We kicked off this journey in October 2016 a couple of months before the program formally started in Januari 2017. We were an enthusiastic group of researchers and societal partners who wanted to deepen the knowledge about ways in which digitalization, together with other measures for sustainable mobility and accessibility, could contribute to a substantive decrease of greenhouse gas emissions from urban transport, while considering issues related to social equity.
We had chosen the Stockholm metropolitan region as our main empirical case. The program was inspired by the decision that had been taken by the city of Stockholm that same year, to reduce the amount of car traffic in the city by 30 percent. This goal was in line with the Swedish national climate policy goals that were adopted in the spring of 2017, and which included a goal for the transport sector to reduce greenhouse gas emissions by 70 percent until the year 2030 compared to 2010.

During the first years of the program, there was a pronounced optimism about all possibilities that the application of digital technology in urban transport entailed. During these years we have seen many examples of new types of shared mobility services and new travel planning and payment services which have made sustainable mobility more well-functioning. Still, however, we have not seen any fundamental shift in car use. While digitization has provided new opportunities for sustainable travel, new technology has also been applied to further enhance car-based mobility.
In the research program, we have prototyped and explored the potential of work hubs, shared bike services in semi-urban environments and new concepts for more socially sustainable public transport. The importance of understanding and using the potential of these different concepts becomes extra clear in the light of the results from the target-fulfilling scenarios that have been developed by Mistra SAMS researchers. According to these scenarios, there is a need to substantially reduce the number of vehicle kilometers per capita if the climate targets to 2030 shall be reached (see also page 6 of this report).

The findings of the research in Mistra SAMS have given several examples of the potential in using digitalization more purposefully and combine it with other established measures for sustainable travel, in order to contribute to sustainable mobility transformations. But it has also become clear that the potentialwill not be realized by itself. There is a need for thoughtful and decisive political leadership, policy, planning, and continuous work with the social and cultural norms that influence everyday practices.

Anna Kramers and Karolina Isaksson, Directors at Mistra SAMS.

A key insight from Mistra SAMS is that a transdisciplinary methodological approach, which builds on collaboration and knowledge exchange among different actors and knowledge perspectives, can lead to a more complete understanding of the conditions for change. Our research also shows that knowledge of specific places and local contexts is essential. It is not likely that what emerges in so-called flagship projects in central city districts will fit in semi-urban settings with other social, special and economic conditions. Local, regional and national policy actors can learn from experimentation, but should also be careful to ensure that they can use the insights in their operations.

The world does not look the same today as it did when we started in 2017. Many events – expected and unexpected – have happened over these eight years. What concerns us most, is the accelerating speed of global heating and biodiversity loss. Against this backdrop, it is frustrating and worrying to see that emissions from the Swedish transport sector are increasing for the first time since 2015. The reasons for the latter are to a large extent within the hands of our national politicians. Our contribution in recent years has been to build empirical knowledge on ways to transform the transport sector to more sustainable pathways. Our results are here, waiting to be used.

With that said we want to thank Mistra for the opportunity to lead such an inspiring project through such a transformational period of time. And a big thanks to all who have contributed.

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