DALARNA UNIVERSITY

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Planning for mobility and accessibility in rural touristic areas: A report on the Swedish case in InterReg MARA project

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MARA — Mobility and Accessibility in Rural Areas

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Abstract

This report summarizes activities within the overarching InterReg project MARA – Mobility and Accessibility in Rural areas, by the two Swedish partners Swedish Transport Authority (henceforth, Trafikverket) and Dalarna University. The overall purpose of the InterReg project was to improve the accessibility and mobility in touristic remote areas of the Baltic Sea Region by increasing the capacity of transport actors. The Swedish case in the MARA consisted of two parts: one looked to improve integrated mobility planning for the boarder region Sälen in Sweden and Trysil in Norway, and the other sought to develop GIS based maps to assist in transport planning.

The first part, the processes related to the Trafikverket planning method, Strategic Choice of Measures (SCM), was studied with the help of previous R&D and own interviews. The SCM is looked into from different perspectives, such as gender, regional development, financing, cultural clashes, and chain of command, thus identifying problems in the process and discussing countermeasures, all using the Sälen and Åre as specific case areas.

The second part highlighted mobility demand analysis using survey data collected on-site in Sälenfjällen, 2020 as well as mobility GAP analysis using a newly developed tool D.U.GIS for the Sälen case area. Furthermore, an innovative use of *Public Participation* GIS (PPGIS) was included as part of the on-site survey as a test on the methods ability to collect data that could improve the early-stage planning processes of Trafikverket's SCM method.

There are three key findings from the Swedish activities in the MARA-project. First, the maps produced by D.U.GIS can be used as analytical support in the planning process to better visualize a current mobility situation and mobility GAPs. Second, the piloting of PPGIS to improve on early-stage planning process showed potential, especially for pointing out gender differences. However, the study was conducted using a small sample and further research is needed to fully assess its potential. Third, the study of SCM identified problems in the process and discussed important issues such as early interplay between stakeholders, flexible way of working together, and continuity of the process. The study also highlighted perspectives on knowledge and competence development.

Keywords: transport planning, GAP analysis, Sälenfjällen, MARA project

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Preface

This report summarizes activities within the overarching InterReg project MARA – Mobility and Accessibility in Rural areas, by the two Swedish partners Swedish Transport Authority (henceforth, Trafikverket) and Dalarna University. The project has been lead by Malcolm Lundgren, strategic advisor at Trafikverket, and Tobias Heldt, associate professor at the Center for Tourism and Leisure Research (CeTLeR) in Dalarna University. Trafikverket activities during the final year were assisted by consultant Thomas Tydén, senior professor in pedagogy. Staff members from Trafikverket were Christina Hjorth (spatial planner at Region Mitt), Mats Olofsson (strategic advisor), Thomas Lundin Larsson (process leader and investigator), and Annica Roos (senior analyst). Active researchers and staff in the Dalarna University team were Daniel Brandt (PhD in human geography), Omar Alnyme (senior research engineer), Beatrice Waleghwa (PhD candidate in tourism studies at Dalarna University and Mid Sweden University), Peter Möller (PhD in human geography and senior analyst at Region Dalarna), Nadia Alarcon and Pia Fleckhaus (MSc from the Tourism Destination Development program at Dalarna University). Funding is gratefully acknowledged from InterReg Baltic Sea, project # R100, Mobility and Accessibility in Rural Areas (MARA)".

Borlänge, October 2021, Högskolan Dalarna, CeTLeR

Summary in Swedish – Sammanfattning på svenska

Denna rapport sammanfattar den svenska fallstudien inom InterReg projektet MARA (Mobility and Accessibility in Rural areas – Mobilitet och tillgänglighet i landsbygdsområden) inom vilket Trafikverket och Högskolan Dalarna har samverkat i genomförande. Det övergripande syftet inom projektet var att förbättra tillgänglighet och mobilitet i områden med turism utanför storstäderna inom Östersjöregionen genom att förbättra kapaciteten hos transportsystemets aktörer. Den svenska fallstudien inom MARA-projektet bestod av två delar: den ena handlade om att förbättra den integrerade mobilitetsplaneringen inom gränsområdet Sälen i Sverige och Trysil i Norge. Den andra delen syftade till att utveckla GIS baserade kartor till hjälp för transportplaneringen.

Den första delen fokuserade på planeringsprocesser kopplade till Trafikverkets Åtgärdsvalsstudie (ÅVS), vilken studerades med hjälp av tidigare forskning och intervjubaserad metod. Med utgångspunkt i fallstudieområdena Sälen och Åres studerades processer kopplade till ÅVS utifrån ett antal perspektiv, såsom genus; regional utveckling; finansiering; kulturkrockar samt styrning- och ledningsstruktur, i syfte att identifiera problem i processen men också att diskutera möjliga förbättringar.

Den andra delen studerade efterfrågan på mobilitet med hjälp av enkätdata insamlad på plats i Sälenfjällen under 2020 och 2021, samt genomförde en s.k. *mobilitets-GAP-analys* med hjälp av den nyutvecklade D.U.GIS-verktyget, också det med Sälenfjällen som fallstudieområde. Därutöver genomfördes en innovativ användning av metoden Public Participation GIS (PPGIS) som en del av datainsamlingen på plats. Detta som ett test av metodens användbarhet för att samla in data som skulle kunna användas och ses som en förbättring av de s.k. *tidiga skedena* i Trafikverkets ÅVS planeringsprocess.

Tre huvudsakliga resultat kan dras från den svenska fallstudien inom MARA-projektet. För det första så kan de kartor som skapats av D.U.GIS användas som ett analytiskt stöd i planeringsprocess genom att bättre visualisera nuläget för en mobilitetssituation samt mobilitets-GAP i densamma. För det andra så visar pilotstudien med PPGIS-metoden potential i att förbättra de tidiga skedena i planeringsprocessen, och då särskilt möjligheten att analysera genus och särskilda intressentgruppers behov. Studien använde ett litet urval av respondenter och ytterligare forskning behövs för att fullt ut utvärdera potentialen i metoden. För det tredje, studiet av ÅVS identifierade ett antal brister i processen och diskuterade frågor såsom tidigt samspel mellan aktörer, ett flexibelt sätt att arbeta tillsammans, samt kontinuitet i processen. Delstudien lyfte även de perspektiv gällande synen på kunskap samt kompetensutveckling.

1. Introduction

This report presents activities for the Swedish case within the InterReg project MARA Mobility and Accessibility in Rural areas (MARA_mobility). The overall purpose of the InterReg project is to improve the accessibility and mobility in touristic remote areas of the Baltic Sea Region by increasing the capacity of transport actors. Twelve partners from nine countries took part in the MARA project, under the leadership of the Ministry of Infrastructure and Digitalization in Mecklenburg Vorpommern (for more information on the project, see https://www.mara-mobility.eu/).

The Swedish case in the MARA consisted of two parts: one looked into important aspects for developing an integrated mobility plan for the Sälen border region in Sweden and Trysil in Norway, and the other developed GIS based maps to assist in transport planning.

The main challenge behind the case was the Swedish Transport Administration's (henceforth, Trafikverket) need to improve its methods, models, and processes in the early phase of infrastructure planning for remote areas with an extensive tourism industry.

Overall, Trafikverket's approach in the case was focused on prerequisites for developing the dialogue between municipalities, other public organizations, business and citizens in winter resorts in the Sälen/Trysil area (main case) and the Åre area (follow-up case). These areas have the common goal of further developing their tourism industries in a sustainable manner, including developing and improving public transport solutions to access these areas. As will be described in more detail later in the report, the case area Sälen/Trysil is, to date, the largest winter tourism destination in Scandinavia based on visitation numbers. For example, the municipality in Malung-Sälen has just over 10,000 inhabitants, but in peak season the head count exceeds 50,000 guests. The increase for Trysil, with just over 6500 inhabitants, is similar when it comes to visitor numbers.

The specific aim of this report is to summarize analytical activities conducted within the case Sälen/Trysil and Åre as part of the MARA_mobility project.

Due to the COVID-19 pandemic, the initial focus on the Sweden–Norway border had to be reduced. Most of the activities used Swedish Sälenfjällen as the main case.

The report starts with a section that briefly introduces transport planning, linking the administrative levels; municipality, region, and nation. This is followed by a detailed introduction to the case areas, including a description of existing mobility challenges. Next comes a presentation of the results from a mobility demand study based on data collected on-site in Sälenfjällen using a version of the common jointly developed MARA survey. The next section analyzes disparities between mobility needs and offers using two types of methods: the first is a GAP analysis using the D.U.GIS tool GAP-analysis tool developed specifically for the MARA project, while the second uses results from a pilot PPGIS study on visitors' perceived transport problems.

A section on tools and processes of planning in Sweden comes next, including the method of Strategic Choice of Measures and a description of its main components and how it is linked to the case area. The final chapter discusses the methods and work done in the case that leads to the process of forming the integrated mobility plan for the main case area. That section discusses specific methods of planning and other planning processes. The section also includes a summary of the interviews conducted in this study, together with insights from the literature review that together form the basis for analysis. A final chapter offers some key findings from the overall Swedish case in the MARA project.

2. Transport planning – national- and regional-level regulations

In Sweden, road or rail projects are planned in accordance with a specific process governed by law, ultimately leading to a road plan or railway plan. When the Trafikverket is planning and building roads and railways, it involves an extensive planning process. A key step in the process is the Strategic Choice of Measures methodology (SCM). This is a necessary step before a final plan is made to develop a road or railway. Before any construction takes place, a construction document is drawn up and decided on. (Swedish Transport Administration, 2013)

Trafikverket is responsible for planning, building, and managing state railways and public roads, especially in rural areas, but also for certain urban routes. Trafikverket is also responsible for the state ferry routes. There are several stakeholders that need to be involved in the process of developing the road and rail network. In the process, Trafikverket cooperates with other government agencies; county administrative boards, municipalities, public transport, interest groups, regional and liaison bodies, and the public and property owners affected by their projects. The three pictures below sketch the steps in the planning process (see Swedish Transport Administration (2013) for further reading).
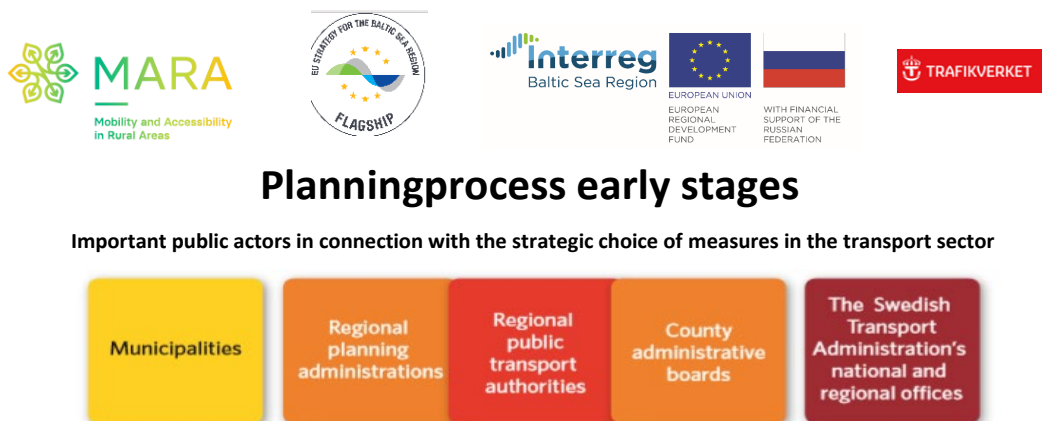
Figure 1. Planning process in early stages
Source: Swedish Transport Administration (2013)

In the bill from 2011 the government states to the parliament that: *"A preparatory study with an unbiased multimodal analysis and application of the "four-step-principle" should take place before any formal physical planning and design"*

Four-step-principle:

1. Think differently!
2. Optimize the use!
3. Reconstruct!
4. New construction!
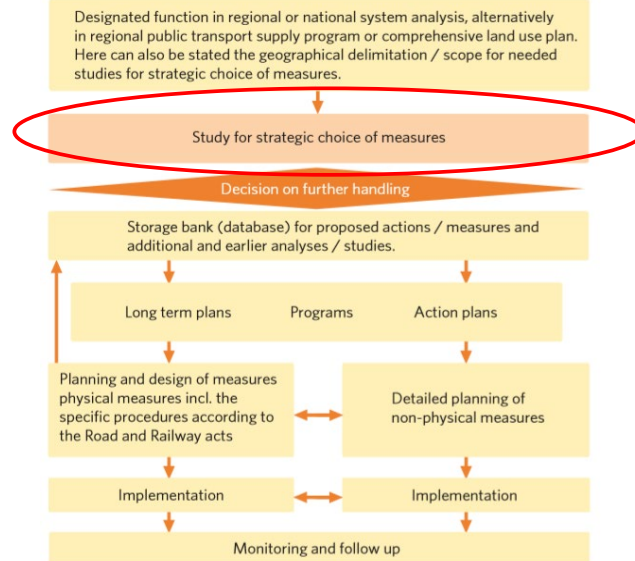
Figure 2. Planning process governed by 2011 bill
Source: Swedish Transport Administration (2013)

The planning process investigates where and how the road or railway will be built. The time it takes to obtain the necessary data depends on the size of the project, the number of studies required, the existence of alternative routes, the budget available, and what those concerned think. The results of the planning process and the design of the road or railway are described and reported in a road or railway plan.

In the beginning of a new planning process, there is also a need to establish how the project can affect the environment. The County Administrative Board then decides whether the project can be assumed to have a significant environmental impact. In this case, an environmental impact assessment shall be prepared for the road or rail plan, where they describe the environmental impact of the project and propose precautionary and protective measures. The plan is kept available for review so that those affected can comment before they complete it. Once the plan is established, an appeal period will follow before the plan becomes final.

Working methodology
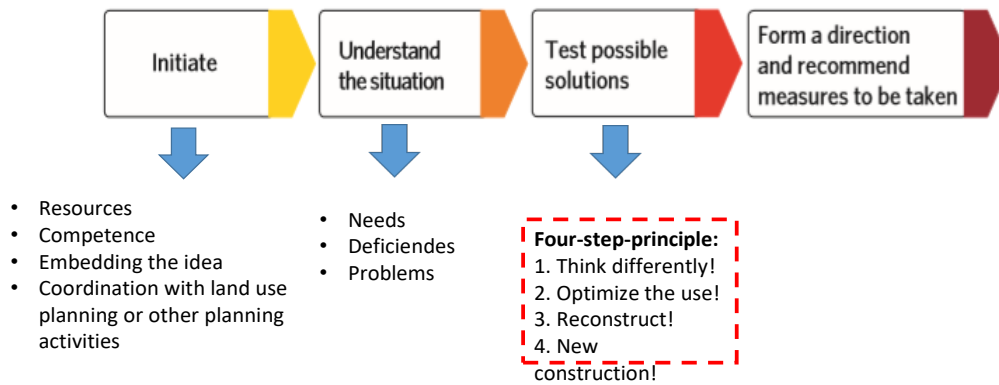
Figure 3. Working methodology for Strategic Choice of Measures
Source: Swedish Transport Administration (2013)

Consultation is important throughout the planning. This means getting in touch with and having dialogues with other authorities, organizations, and the relevant public in order to obtain their views and knowledge. Trafikverket can consult directly with those concerned or through meetings that are open to the public. Sometimes Trafikverket also have meetings with the landowners who are particularly concerned by a project. The comments received after consultations are compiled in a consultation report in which Trafikverket also report on how the comments will affect the project.

2.1 National transport plan

Before starting the planning process for a road or rail project, long-term financial planning is carried out for the overall road, rail, maritime, and aviation transport system. The planning is compiled into what is known as the national plan for the transport system. The national transport plan contains how much money they have to spend, what to do, and what geographical areas are involved. These may include new railways, roads, or shipping lanes, as well as conversions, operation, and maintenance and road safety or environmental measures. The government ultimately decides on the content of the national plan. Trafikverket's task is to make the plan a reality.

2.2 County plan for regional transport infrastructure

In addition to a national transport plan, each county develops a so-called county plan for regional transport infrastructure. The county plans contain the investments that the counties themselves intend to make, taking into account the overall transport needs within the region. These include regional road grants for regional public transport, operating subsidies to non-state airports, and co-financing of measures in national plans. The government decides on the financial framework for the counties. Each county is responsible for how these funds are prioritized in their county plan.

2.3 Financing from EU

The European Union's various programs also offer opportunities for funding of activities that complement national and regional programs. Through the EU's structural funds, co-financing can be provided for complementary infrastructure such as multimodal travel centers. While that possibility is no longer open in the Sälen area, for northern Sweden, to which Åre belongs, co-financing of travel centers, bicycle paths, etc. can be obtained from the EU's structural funds. Projects under the EU's Interreg programs, such as MARA, can support knowledge building and demonstrations aimed at developing sustainable mobility solutions that meet citizens' needs for accessibility.

3. The Swedish case in the MARA project

The Swedish case has the Sälen–Trysil destinations as the main object of study, with the destination of Åre as a follower case. This section of the report describes the two areas and discusses the current mobility situation. To start with, Figure 4 shows the location of the two destinations in the Baltic Sea region. The figure also zooms in on Åre and Sälen/Trysil, including analysis of mobility gaps, which will explained in the next section.
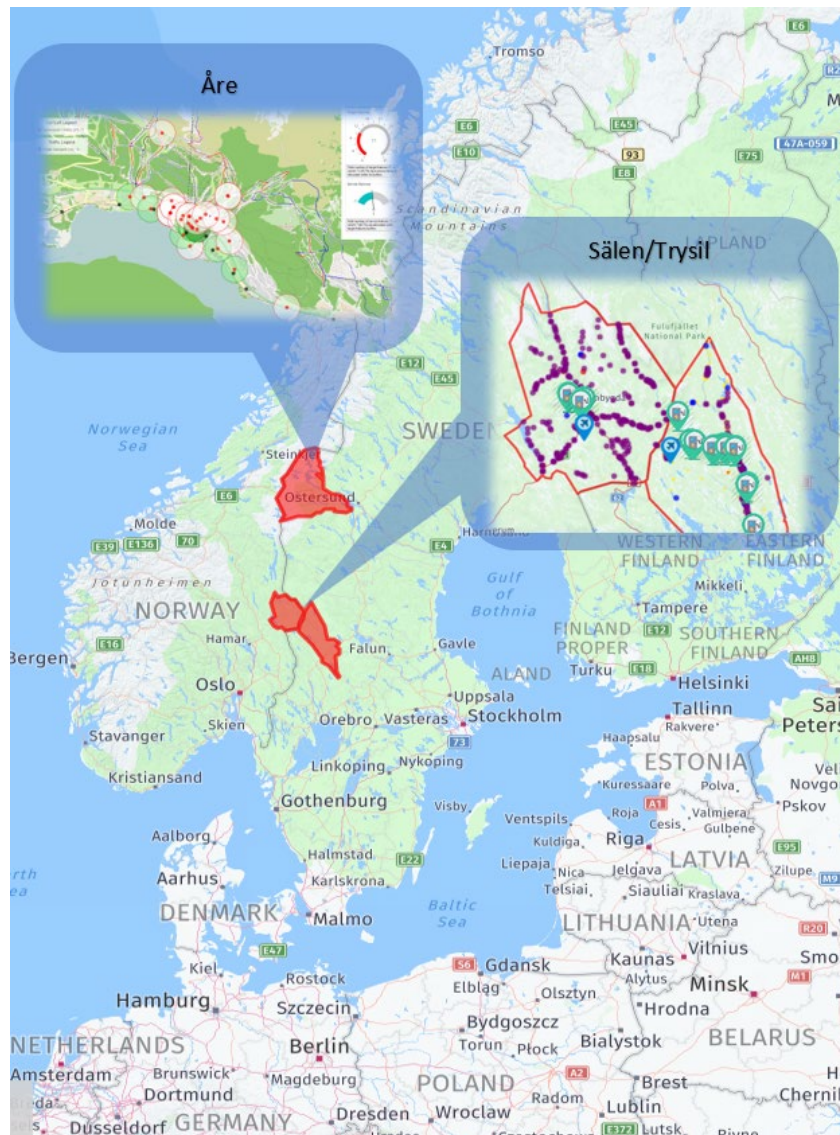
Figure 4. Map of the Swedish case areas in the MARA project. Source: D.U.GIS system

Sälen/Trysil is a cross-border area that includes Sälenfjällen, Sweden's number-one winter tourist destination in terms of guest nights, and Trysil, also the number-one destination on the

Norwegian side. Sälenfjällen receives roughly 5 million guest nights on a yearly basis, while Trysil records slightly over than 2 million guest nights a year. As mentioned, due to the pandemic, the interaction with Trysil on the Norwegian side was not possible. Borders closed in April 2019 and were not opened until end of September 2021; that is, basically after the end of the MARA project implementation. In the following, therefore, the Swedish case description focuses on Sälenfjällen as the main case area and Åre as a contrasting follower case area.

3.1. Sälenfjällen

As of 31 December, 2020, the local population in Malung-Sälen was 10,177 according to Statistics Sweden (SCB, 2021). Table 1 below provides further details of the population structure of the municipality Malung/Sälen.

Geographically, there are several ski areas and residential quarters, but they are rather separated from each other. The distance is about 40 km between the two end points: Kläppen ski resort and Stöten. It is possible to go by train to Mora and then take a bus from Mora to Sälen-Trysil, a distance of 100–150 km depending on where in the ski area one wants to go. There are also direct buses from Stockholm and other large Swedish cities. The Sälen-Trysil area offers a great variety of ski experiences, with slopes that cater to all types of skiers. Figure 5 shows the main points of attraction in Sälen: the ski slopes. As can be seen, they are located fairly close to each other, still forming a spread-out destination.

Figure 5. Map of ski slopes in Sälenfjällen
Source: Fritiden.se, (2020)

Figure 6 below shows the newly opened airport in the middle of the Sälen-Trysil area.
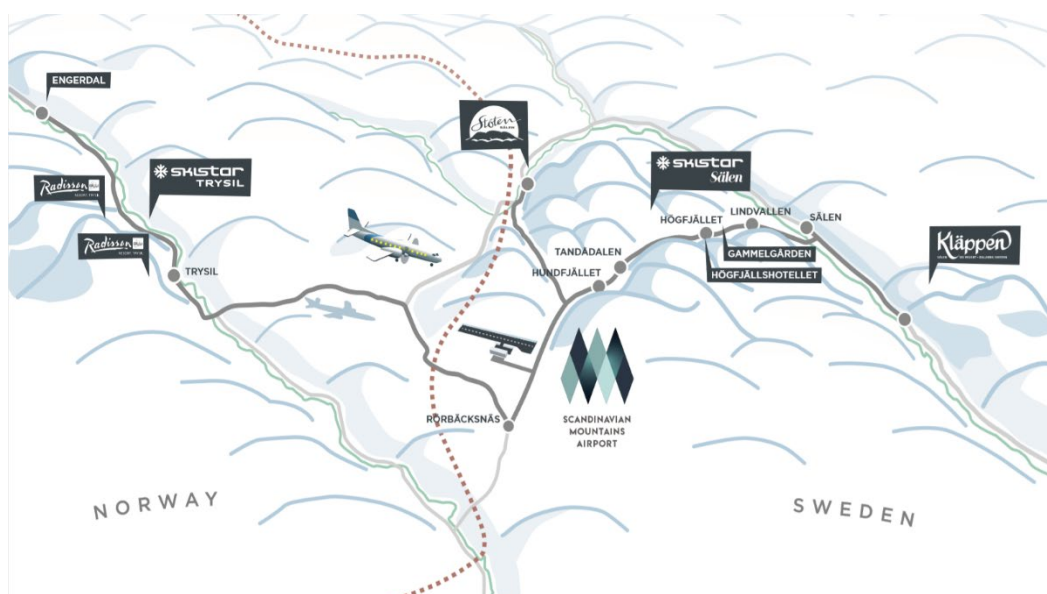
Figure 6. MAP of Sälen/Trysil and location of Scandinavian Mountains Airport
Source: Destination Sälenfjällen.se (2020)

Both the previous mobility studies and the study carried out within MARA project confirm that the preferred mode of transport for visitors coming to Sälenfjällen is car (Heldt et al, 2017).

Table 1. Basic population information in Malung-Sälen and Åre municipalities

Region	Total population	Population		Population change per 1,000 inhabitants (2014–2019)	Population		
		city	village		0–19 years	20–65 years	over 65 years
Malung Sälen municipality	10,177	-	-	- 0.141	1974	5410	2728
Åre municipality	12,049	-	-	+ 1.382	2806	7054	2121

Source: Statistics Sweden (2021).

3.2 Åre

In the follower case area Åre, the population as of 31 December, 2020 was 12,049 (Statistics Sweden, 2021). Åre Municipality's population has increased by 11 percent over the last five years, one of the sharpest increases in Sweden. Pre-COVID numbers for commercial guest nights for Åre were estimated at 1.1 million, more than 70 percent of which took place during the winter season (JHT 2020).

Geographically, the Åre ski area is integrated around a central village, in which the train station is also located. Figure 7 shows the layout of Åre and how to get to the destination via various modes of transport. It is possible to access using all types of public transport, bus, train, and plane.

The majority of visitors still arrive by their own car on E14, although the modal split has been shown to differ substantially between summer and winter visits. In a 2017 study, the modal split for winter travelers to Åre were car (36 percent), train (40 percent), plane (7 percent), and other including bus (18 percent), while the respective figures for summer were 89 percent, 8 percent, 2 percent, and 1 percent. Visitors can fly to Åre via one of the two fairly close airports: either Åre-Östersund Airport, located at Östersund some 100 km to the east, or Vaernes Airport, Trondheim Norway, 136 km to the west.

Figure 7. Map of the case area Åre. **Source: Trafikverket**

3.3 Analysis of current mobility, connectivity, and accessibility situation in Sälenfjällen

Sälenfjällen and Åre are both far away from the metropolitan areas in Sweden. Once visitors arrive in the areas, there are local buses that run on schedule and taxis. The most practical means of moving around in both areas is by car. This is especially true for Sälen, with its elongated structure.

To better visualize the population density, the maps shown in Figure 8 were created for the Malung-Sälen municipality. They the more densely populated center of Malung, with two 500m square areas populated by 700 and 900 inhabitants, respectively. Similarly, for Sälen village, the map to the right shows population density generally below 49 inhabitants per square kilometer, but with peak numbers in Sälen village reaching up to approximately 300 inhabitants per km^2 for the two central squares.
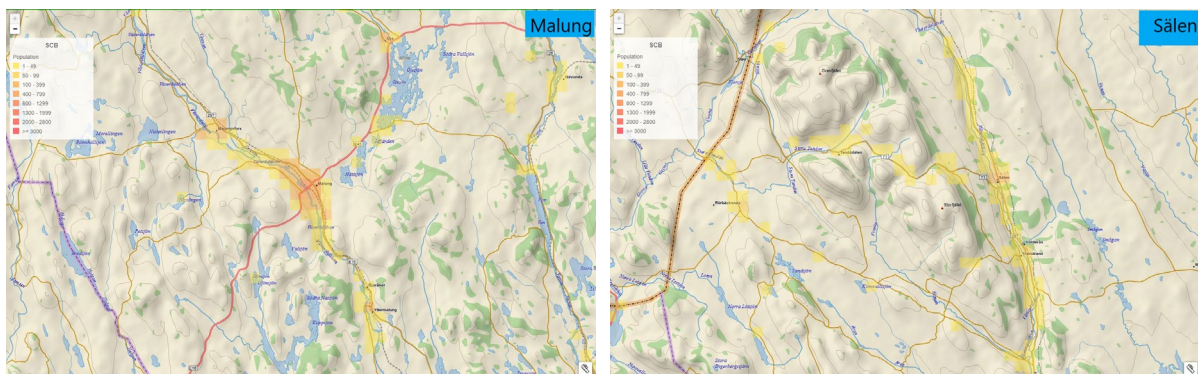
Figure 8. Population density in Malung (left) and Sälen (right) villages. Source: D.U.GIS system

The existing mobility models in the region, as described above, are mainly individual cars using the road network. However, mobility offers include options for travelling to, from, and within the case areas with public transport. As an example, Figure 9 shows the system of public transport in Sälen/Trysil area. The 603 purple dots indicate the location of bus stops in the wider municipalities containing Sälen and Trysil. The municipality borders for Trysil fylke and Malung-Sälen municipality are highlighted in red.
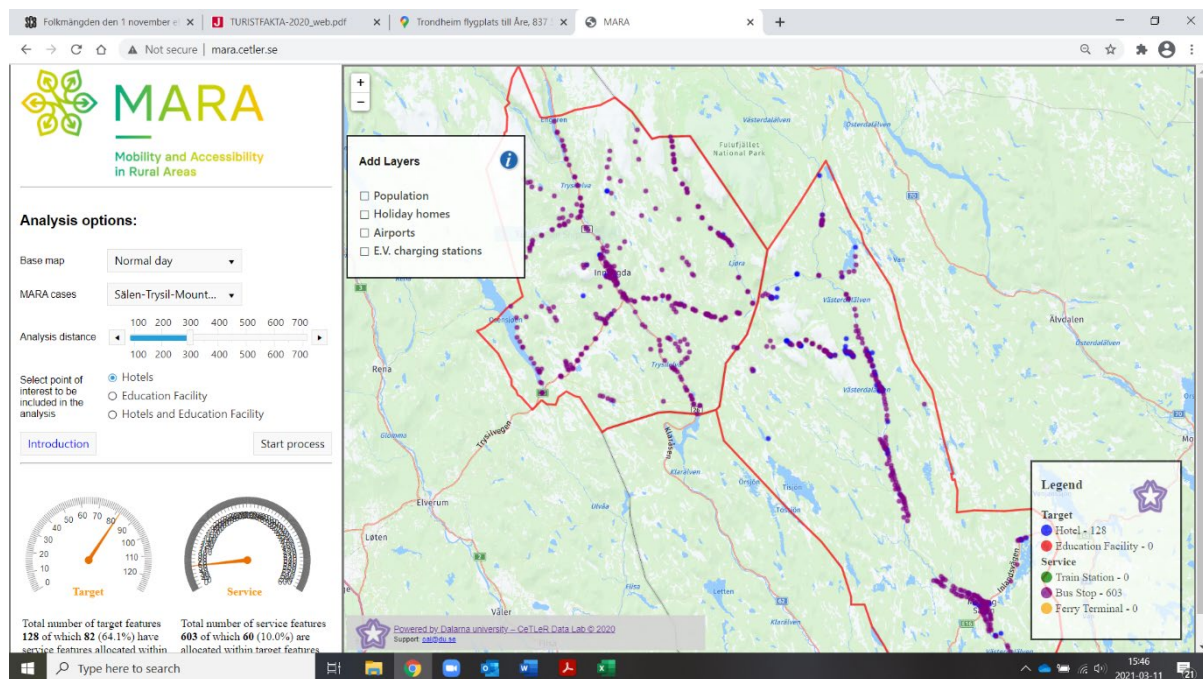
Figure 9. The location of a total of 603 public transport bus stops in the area. Source: D.U.GIS system

As described above, the area has, until recently, primarily been a winter tourism destination. There is currently no bike-sharing system, but there are several bicycle rental companies in the area. It is also common for hotels to offer guests the opportunity to rent bikes.

The area does not have a call-a-bus-system. However, in wintertime there is a shuttle bus system that offers a mobility service in between key points of interest and main lodging areas in the destination.

Table 2. Main problems of mobility and accessibility in Sälenfjällen

Region	The main problems of mobility
Sälenfjällen	• Models and processes in the early phase of infrastructure planning are weak • Sustainable destination development – more sustainable travel • Car dependent for travel to and within the destination • Crowded roads in the destination as well as on main access roads during peak days when "change of lodging" takes place

3.4 Analysis of current mobility, connectivity, and accessibility situation in Åre

Åre has a geographical advantage as the village is concentrated and situated along a railway and a highway. Over the past decade, Åre has developed in a number of different areas. Åre Municipality has the second-largest percentage population increase in the whole country at the last survey. Between 1 November, 2019 and 1 November, 2020, Åre municipality's population increased by 3 percent, which corresponds to 355 people. In percentage terms, only Trosa municipality in Södermanland had a sharper increase during the current period. A conscious investment by the municipality and industry initially developed winter tourism, but gradually also developed a number of summer activities. "Åre all year round" was a slogan that became a reality. The population increase started with migration due to the positive development in the tourism industry, including the investment that Åre municipality and the industry together made on Åre Strand and, above all, the increased summer tourism that it entailed. Growth was made possible by close cooperation among Åre Municipality, Åre Destination AB, and Skistar.

The investment in Åre Strand broadened the destination's offering, especially during the summer, and created the opportunity for more year-round tourism. At the same time, retail space in Åre increased significantly, increasing the supply of shopping. Small companies with a focus on fashion, culture, spa and health have started and certainly influenced women's decisions to move to Åre. As a result, the number of jobs and the opportunities to earn a living all year round have increased. The population group that is increasing the most in the municipality is couples in their twenties and thirties with children. During this period, however, efforts in the transport system have lagged behind.

Table 3. Main problems of mobility and accessibility in Åre

Region	The main problems of mobility
Åre	• Models and processes in the early phase of infrastructure planning are weak • Sustainable destination development – more sustainable travel within Åre • Real estate developers do not take responsibility for overall sustainable destination development • Visitors are car-dependent for travel within the destination • Crowded roads in the destination as well as on main access roads during peak days when "change of lodging" takes place

3.3 Dialogue with Destination Åre

In the project plan for MARA it was stated that findings in the project shall be tested for usability in Åre. Therefore, a discussion was started with some stakeholders in Åre order to identify which of our results could be transferred to them. One lesson is that we must also think the other way around. Åre has a lot of experiences that Sälen can use. Intense knowledge interplay between the two destinations has been suggested, as will be discussed in Section 6 of this report.

4. Mobility needs in the Sälenfjällen region

During the project, there has been survey data collection within the case focusing the specific purpose to analyze mobility and accessibility for Sälenfjällen at two occasions. Data collection one took place in the Sälenfjällen during weeks 9–13 of 2020 and is reported on separately in Alarcon et al. (2020). This data collection was made on-site using a self-complete questionnaire and Public Participation Geographic Information System (PPGIS) adapted for the Sälenfjällen case area.

The COVID-19 pandemic affected the possibility to collect data in the field 2020. Another round of data collection therefore took place during spring of 2021 to complement the first round.

Data collection #two took place in the Sälenfjällen during weeks 2-9 of 2021 using the same type of on-site sampling and with the use of self-complete paper questionnaires. The data collection is reported on separately in Fleckhaus et al. (2021).

A summary of the results of the analysis show that the trip characteristics influence the transport mode choice. Also, there are differences in the tourists' perceptions of the mobility situation depending on which transport mode was chosen. Moreover, the perception of the mobility situation has a link to the overall satisfaction visit to the area, although the relationship is weak. Some descriptive statistics and key findings related to mobility need are summarized as an example below.

4.1 Descriptive statistics of collected data during 2020

For the 2020 data collection, a total of 162 responses entered the final analysis. Table 1 contains the summarized demographic information of the respondents of the questionnaires used. Most respondents were female (56 percent) followed by males (43 percent) and third gender (1 percent). The vast majority of the tourists were from Sweden (94 percent), followed by Denmark (3 percent), United Kingdom (2 percent) and the USA (1 percent). The age of the respondents ranged from 18 to 73, with an average age of 40. This average falls in the range between 31–45 years, which represented 40 percent of the total data collected. The other age ranges are 46–60 (27 percent), 18–30 (26 percent), and 61–75 (7 percent).

Table 4. Descriptive Statistics

	Responses	
Variable	(n)	Percentage
Gender:		
Female	83	56%
Male	63	43%
Third Gender	1	1%
Country:		
Sweden	141	94%
Denmark	5	3%
United Kingdom	3	2%
United States	1	1%
Age group (years):		
18–30	39	26%
31–45	59	40%
46–60	40	27%
61–75	10	7%

Source: MARAInterReg project questionnaire (Alarcon et al. 2020)

Moreover, the data shows that the tourists who visited Sälenfjällen were attracted mainly by alpine skiing and other activities (75 percent), as shown in Figure 7. This is followed by visitors who own a cottage and other activities (13 percent) and just for other activities (12 percent). Regarding the type of accommodation, also shown in Figure 2(b), the respondents stayed mostly in rental accommodation (58 percent), followed by own accommodation (22 percent), hotels (11 percent), and other accommodation (8 percent), which includes staying with friends or family, camping vans, hostels, and caravans.
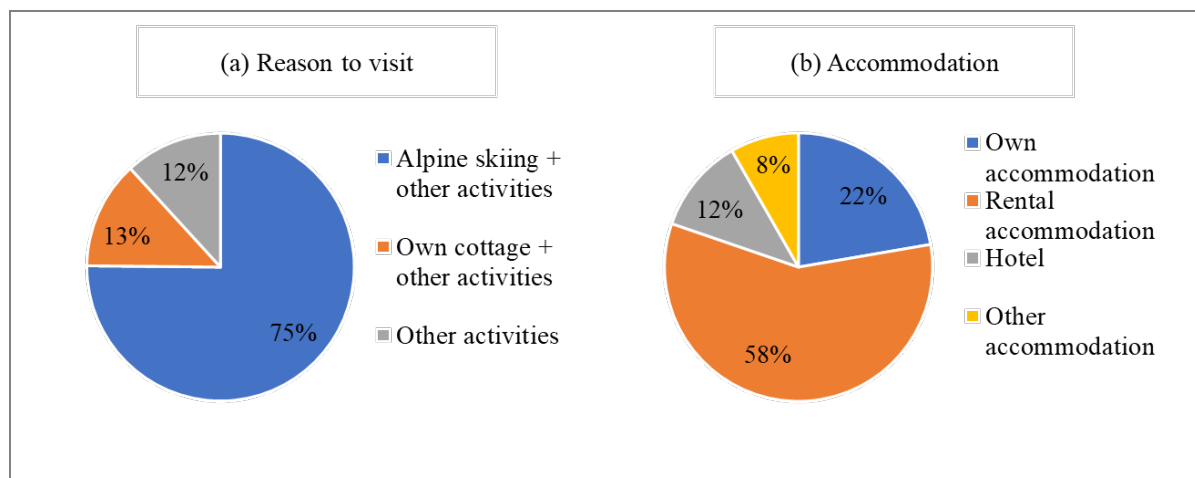
Figure 10. Reason for visiting, and accommodation. Source: MARAInterReg project questionnaire

Regarding the frequency of visit to Sälenfjällen, presented in Figure 8, first-time visitors accounted for 8 percent, more than three times/year for 15 percent, two or three times/year for 20 percent, and less than once a year for 57 percent). Finally, the most common average length of stay for the respondents was between six and nine days (43 percent) suggesting that most respondents stayed for around a week. This can be compared to the findings of a previous study conducted within the TURSAM project, Heldt et al. (2017), for which it is reported that 55 percent of respondents stayed for an average of 4–7 nights. In addition, as shown in Figure 3(b), only a few (6 percent) of the respondents stayed longer than nine days.
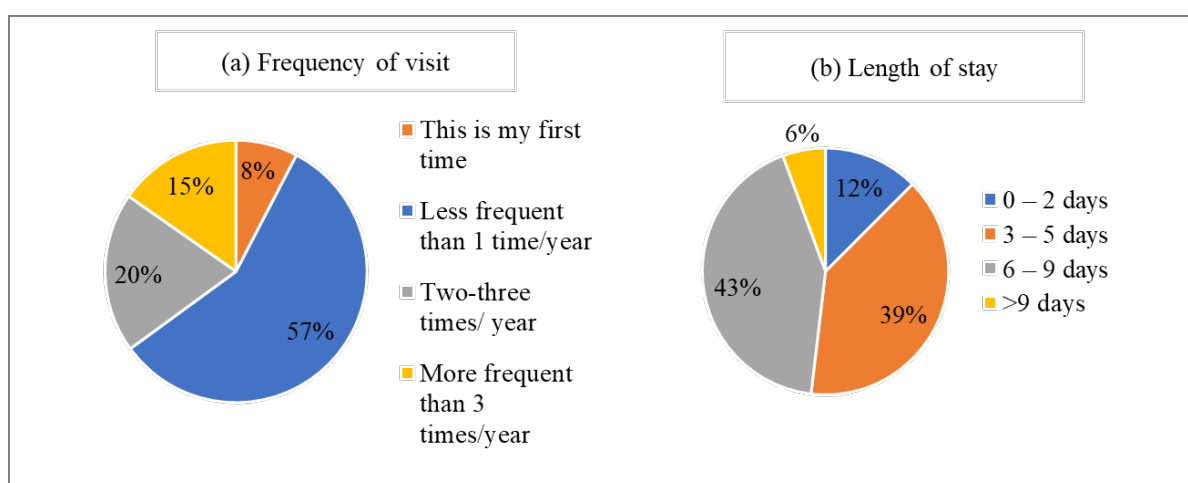
Figure 11. Length of stay and frequency of visit. Source: MARA InterReg project questionnaire.

4.2 Transport preferences for visitors to Sälenfjällen

There are some mobility alternatives from which tourists can choose to travel in two spatial levels: to Sälen and moving within the destination. Figure 4(a) summarizes the results on the transport mode choice to travel to the destination. The data show that the most chosen mode is the car, comprising own car (87 percent) and company car (7 percent). Airports were used by 5 percent of respondents and train was the least chosen category (1 percent). Tourists who travel to Sälen by train need to make bus connections in Mora or Borlänge, since there are no train stations in Sälen.

Regarding the choice to move within the destination, which is presented in Figure 9, once again most of the tourists used their own car (59 percent), followed by walking and not travelling around (12 percent each), combined modes (9 percent), taxi (4 percent), bus (3 percent), and rental cars (1 percent).
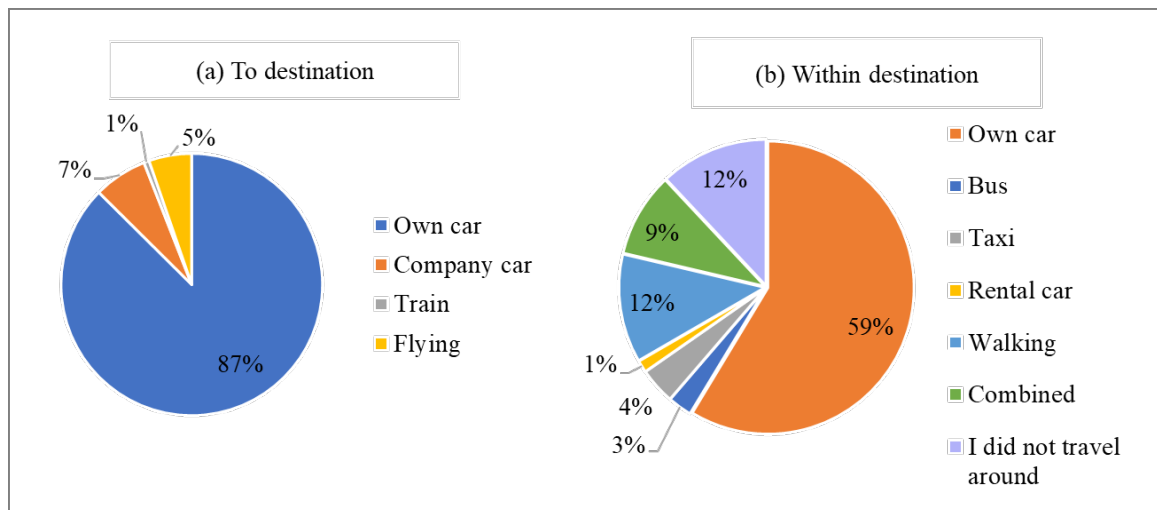
Figure 12. Transport mode choice to and within Sälen. Source: MARAInterReg project questionnaire

Moreover, the experience of mobility in a destination could be influenced by the transport mode choice, which could be a result of trip characteristics.

As a note on methods used within the entire Swedish case, one can say that the project has been supported with data collection of different kinds carried out by representatives of the partners, DU and Trafikverket. Quantitative studies with data collected on site in the Sälen area took place using an on-site paper-and-pen self-complete survey. In-depth interviews took place with a number of stakeholders in both the Sälen-Trysil case area, as well as in the follower case area Åre. Desk research assisted the overall case.

5. Disparities between current mobility needs and existing mobility offers

Even though the case of Sälen-Trysil has a focus on improving processes of infrastructure planning at early stages, for consistency this section reports on a mobility gap analysis for the case area. Using the on-line tool DU_GIS, developed by the Dalarna University team as part of the MARA project, the maps below show mobility mismatches (gap) in the region.

This section focuses on an illustrating the mobility gap between a current mobility need (that is, the travel demand of visitors staying in a hotel, represented in the following by a listing of the point-of interest "hotel") and the mapping of the existing mobility offer(/solution) in the region when it comes to public transport accessibility. The latter is represented by the mapping of bus stops in the region. Figure 13 shows the example of a mobility GAP analysis for Sälen.
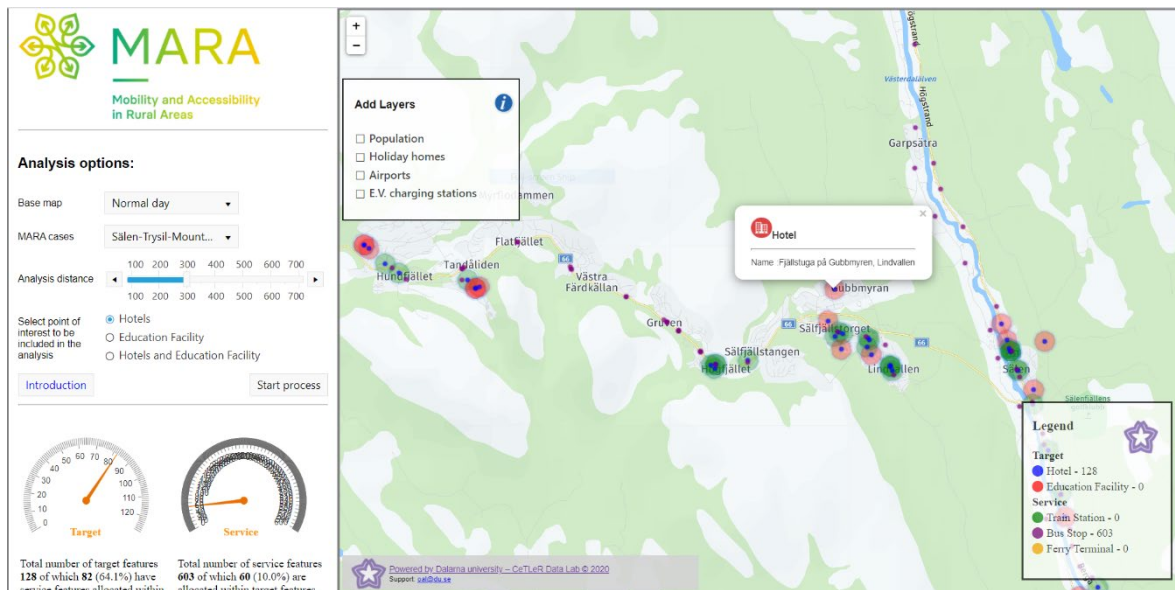
Figure 13. Mobility GAP_analysis **300 m** Sälen area. Source: D.U.GIS system

The meaning of the target and service features are shown in the bottom right-hand corner of the figure. Blue dots displays the total of 128 hotel/lodging facilities in the area, while brown dots indicate bus stops (603 in total in the two municipalities). As can be seen, the map is zoomed in to allow for a better display of the GAP. The performed analysis indicates a circle around the target feature: Hotel. The circle is green if there is a bus stop available within the analysis distance of 300 m. The analysis distance can be changed, as will be shown in the following maps. A final remark on the features of the map is the evaluation indicator in the bottom left corner. It states that the overall mobility GAP in the whole area is 35.9 percent; that is, coverage

of bus stops to the hotels is 64.1 percent. Of the 128 target features, 82 are within 300 meters of public transport.
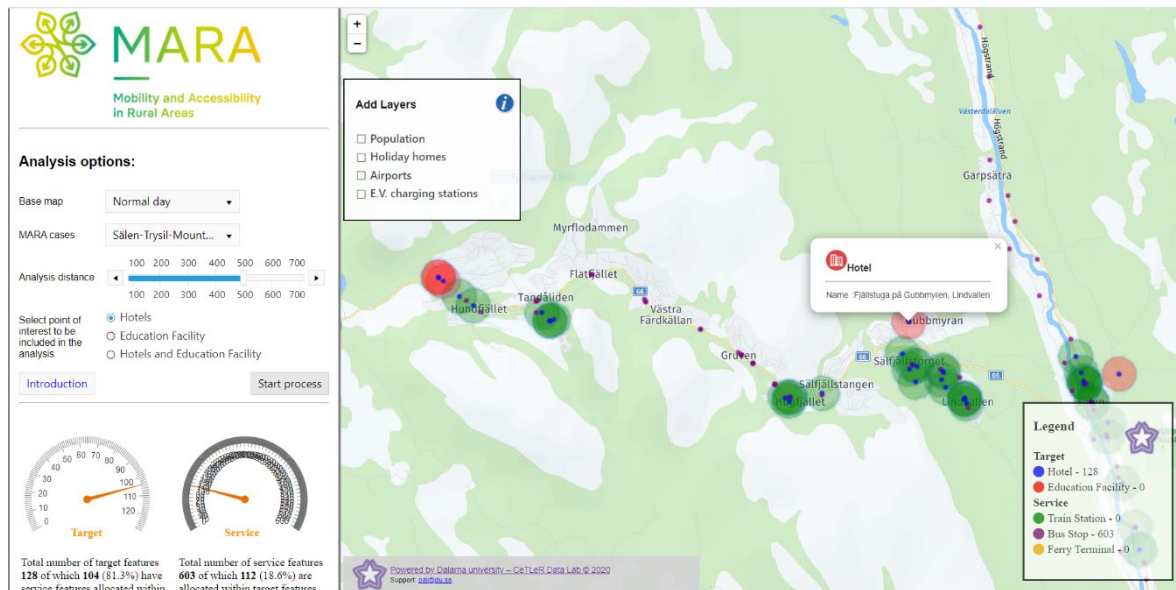
Figure 14. Mobility GAP_analysis **500 m** Sälen area. Source: D.U.GIS system

Figure 14 shows the results when the analysis distance is extended to 500 m. As the analysis indicator shows, the increase in distance narrows the mobility GAP; now 81.3 percent of hotels are covered by public transport within 500 m.
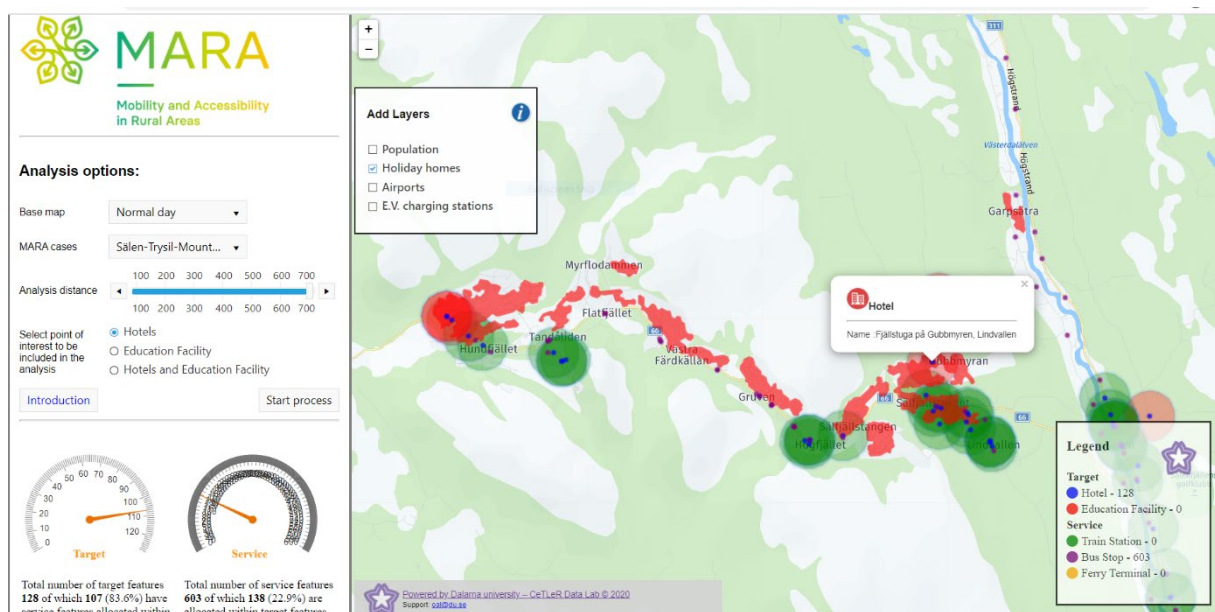
Figure 15. Mobility GAP_analysis 700m + holiday home areas Sälen area. Source: D.U.GIS system

A final analytical feature of the MARA mobility GAP tool is displayed in Figure 15. The map now includes an overlay of the areas where the holiday homes are located. The GAP analysis distance is increased to the maximum of 700 m. It can be clearly seen in the middle left that there is a holiday home area not covered by public transport within 700 m. This indicates an obvious GAP in the accessibility to this area with a public transport mobility option.

5.1 Innovative solutions to improve mobility as part of a sustainable destination

To improve on the dialogue at early stages, and as a test of innovative solution proposed by the Finnish partner, SYKE, it was suggested that public participation could be used (ref. to SYKE study). Allowing stakeholder groups that are currently less engaged in the process to map their perceived mobility challenges could add to the early stage process. It was also suggested that a gender perspective could be included. The following section summarizes the purpose and results of the pilot PPGIS study, which was carried out during the testing phase of the MARA project. For further reading, see Waleghwa and Heldt (2020).

5.2 Results from PPGIS study

Public participation GIS (PPGIS) is used to generate spatially explicit place-based information that can inform land-use planning and management alternatives (for further reading, see, for example, Brown, 2017 or Kahila-Tani et al., 2016). Historically, PPGIS comes to the GIS community from the planning profession and has the main aim of including input from different groups in society that would otherwise be excluded in decision making (e.g. Craig et al., 2002). As part of the testing phase of the MARA project, with the aim of improving the early-stage planning, a PPGIS study was carried out. The mode of data collection was as a paper-and-pen survey (with a small part also testing on-line survey tool). PPGIS mapping tasks was included as part of the survey described previously in this report.

The questions included multiple choices where respondents could answer with the attributes as below.

     i.   Why do you think these places need improvement?

    ii.   What kind of development do you think is required?

5.2.1. Places suggested for improvements

The mapping question was the one that was intended to be of most value for transport planning in early stages. In this question, respondents had the opportunity to mark places that were in need of improvement and suggest the type of improvement to be made. In response, as shown in Figure 15, a total of 39 markers were placed. Marking can be quite challenging and varied engagement is a common challenge in such studies (see Waleghwa and Heldt (2020) for a deeper discussion).
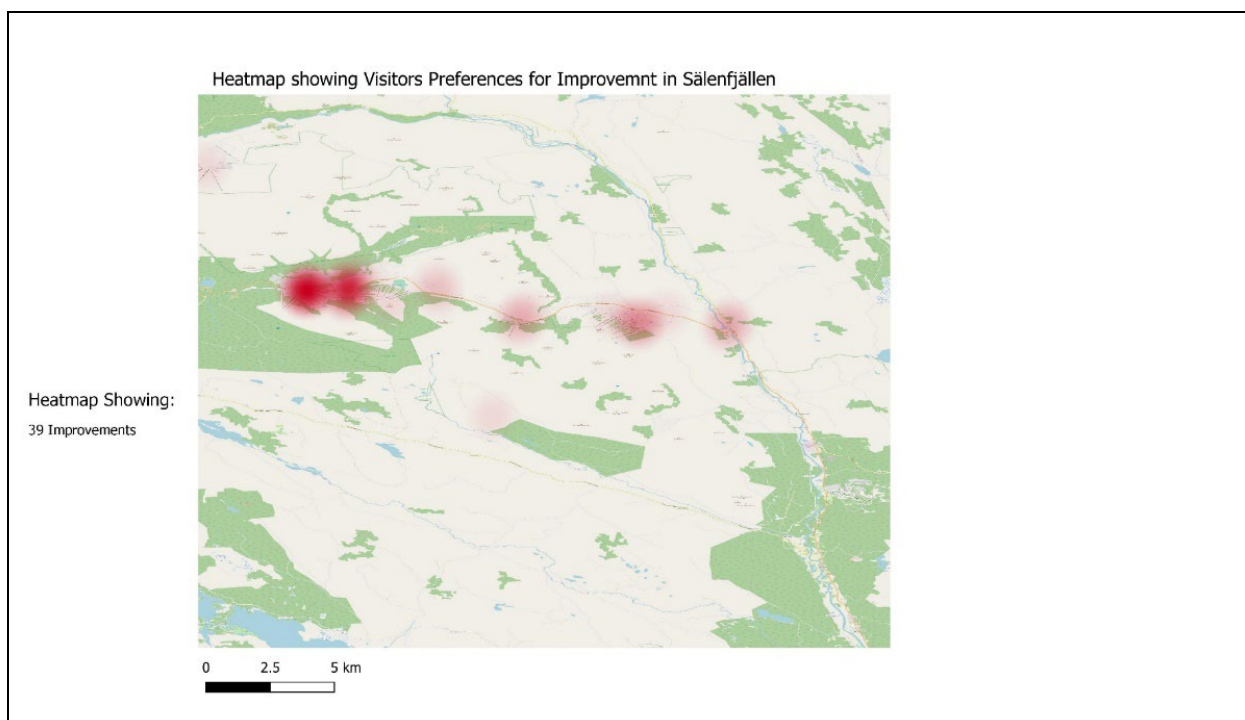

Figure 16. Places suggested for improvements. Source: Waleghwa and Heldt (2020)

In conclusion, comparing these results with the results of mobility GAP analysis in the previous section, it is the exact same location highlighted in the Figure 16 with suggestions for improvements as having a high mobility GAP.

6. Challenges of transportation models and recommendations for improving mobility offers in policy and planning documents

One of the key challenges of transport and mobility in the Sälen/Trysil case area relates to geographical conditions and naturally given prerequisites. The mountains that host the ski facilities are a key naturally given asset. Business facilities, restaurants, and hotels, as well as lodging areas, have been developed based on this geographical conditions. As pointed out in the previous section, Sälen-Trysil has a widely dispersed geography. The distance is about 70 km from between the two endpoints. There are several ski areas and residential quarters, but they are rather separated from each other. As a consequence, for mobility the majority of visitors chose to bring their own car to the resort. That means the national roads leading to Sälen/Trysil are sometimes heavily used with repeated traffic jams. The two major roads are narrow, passing through many small villages. This section discusses methods and offers insights from stakeholder interviews, as well as offers insights on how to implement a future Integrated mobility plan.

6.1. The planning method Strategic Choice of Measures (SCM)

In cooperation with stakeholders and other interest groups, the Trafikverket has conducted a study in the Sälen area with the S*trategic Choice of Measure* method (henceforth referred to as SCM, in Swedish the acronym is ÅVS) (Trafikverket 2017). The method has been discussed earlier in this report. Some of the recommended measures proposed in this study will form the basis for actions with funding primarily from the Trafikverket's regional plan, but also funding from involved stakeholders.

The Trafikverket's Region Mitt was responsible for project managing and carried out an SCM study in collaboration with Malung-Sälens Municipality. The purpose of the study was to understand the situation, test possible solutions and shape the direction for the future of the vulnerable road users who move along and across Road 66 between the villages of Sälen and Hundfjället. The study also aims to create consensus and develop common planning basis for the future work of the different actors.

The following chapters discuss the method SCM and its relation in the planning processes. The interviews conducted in this study, together with R&D results, form the basis for this analysis. The method of SCM is looked into from different perspectives, such as gender, regional development, financing, culture clashes, and chain of command, thus identifying problems in the process and discuss countermeasures.

6.2 Identifying and listing stakeholders for the Swedish case

The MARA projects focused on the planning process within Trafikverket. One important aspect is to increase understanding of how Trafikverket can, as early as possible in its planning, interplay with different stakeholders in the region with interest in transportation. The question affects some crucial factors that have been raised in this project and have to be dealt with, such as identifying and listing stakeholders.

The project plan for the MARA project lists the various stakeholders, nine in total, including the Commune Malung/Sälen, County Administrative Board, Destination Sälen, and Skistar. They are all organizations with a stated role of working with transportation issues. But there are many more stakeholders that can contribute. Beside those listed in the project plan are other actors who, in various ways, have a connection to the aim and goals within the MARA project. Some of them have already been in contact with the project and are aware of their contribution. Others are, to varying degrees, part of the project, but are not always aware of it. Added to this are actors that, in different ways, could be of importance for the success of the process. Mapping them is an important task, but it is not done merely by interviews as their relevance for MARA might not be obvious for them. That can be explained by research showing how professional groups are to some extent unaware of how their daily work is carried out and which information channels they use. they often have this insight, but it tends to be on a subconscious level and they might need support to articulate it. Mapping actors that are important but not so visible requires special methods. One of these is the snowball method. It involves using the contacts you already have and asking them for additional actors; these contacts can subsequently lead to other possible stakeholders, who in turn can lead to others. When the same names start to appear, the so-called saturation point has been reached.

The dialogue with relevant stakeholders will gradually lead to new knowledge and new measures to be integrated in their work. It is vital that this dialogue is part of an ongoing process,

as important circumstances change all the time. Which organizations and which individuals are considered relevant stakeholders also changes from time to time. The importance of this flexible way of working is identified as a crucial factor for success.

As described above, nine stakeholders were listed in the project plan, but through our work with the snowball method, an additional 21 stakeholders were identified, as listed in Table 5 below.

Table 5. List of stakeholders

Besöksnäringens Forsknings- och Utvecklings Fond, BFUF (Tourist R&D fund)
Fiskarheden (sawmill in Sälen)
Fjällstugeföreningen i Sälen (association of hoouseowners in Sälen)
Fjällsäkerhetsrådet (mounting rescues council)
Destination Sälenfjällen
Destination Trysil
Grensekommittén (bordercommitte)
Högskolan Dalana Dalarna university college)
KLÄPPEN (skiresort in the area)
Polisen (police)
Region Dalarna (County council of Dalarna)
Räddningstjänsten (emergency service)
SCR – Svensk Camping (Swedish camping organisation)
SKISTAR
SLAO Svenska Skidanläggningars Organisation
STÖTEN
Svensk Turism AB
Scandinavian Mountains Airport,
SITE (Sälen-Idre-Trysil-Engerdal, InterReg funded project)
Svevia (road carrier)
Sälen Buss (Bus company)
Sälens snöskoter klubb (snow scooter club in Sälen)
Sälens Fjällsäkerhetskommitté (Sälen security committe)
Sälen Malungs kommun (Sälen-Malung municipality
Trafikverket (Swedish Transport Administration)
VISITA (tourist orgsanisation)
Visit Dalarna(tourist orgsanisation in Dalarna)
VisitSweden (tourist orgsanisation in Sweden))
UHR; hotel- och restaurang mfl (association for hotel- and restaurants)
Vägbyggare PEAB (road bilder company)

6.3 Prerequisite for constructive knowledge interplay between stakeholders

The process of identifying relevant stakeholders is also the start of a process to develop transport planning, such as an SCM process. The basis for this process is regular meetings with Trafikverket and the stakeholders. In our interviews with the involved actors we have identified some important prerequisites in order to further develop the planning process. One is **continuity** and the other is to define **perspective on knowledge and competence development**.

6.3.1 Continuity

We noted how important it is for the dialogue to be allowed to take its own time so that the meeting between the participants, having differing kinds of background knowledge, could have a chance to develop. Allowing the meetings to take their time increases the likelihood that exaggerated respect and prejudices among the participants would diminish and that a relationship based on more realistic expectations can be developed. People need time to get used to each other, establish a working relationship, develop their own vocabulary, and develop in-jokes and other routines that make them a good team. How long this process should take can only be decided from case to case. The participants will eventually feel they have had enough and feel satisfied with progress on that occasion. It is important that they allow the process to take its time, that they are attentive to one another and that they are not in too much of a hurry, which could cause them to lose contact. One further reason for "making haste slowly" and allowing the process to take all necessary time is that transport planning for some of the participants might compete with other activities. The transport planning meetings only take up a fraction of their time. Their working day is filled with contacts, meetings, decision-making, information intake, and external influence. This can be one of the reasons why stakeholders in our interviews found the process to be slow.

6.3.2 Perspective on knowledge and competence development

In the planning process it is important to define a perspective on knowledge and competence development. In order to add value to the dialogue with stakeholders, it is an advantage if the participants discuss and eventually share the same perspectives.

Such perspectives may include:

- Information overload

- Rapid knowledge change

- Knowledge and values

- Know-how and know-why

6.3.2.1 Information overload

Since radio became a public property over a century ago, the trend towards one-way mass information has been greatly strengthened. This trend shows no sign of slowing down and, for the future, we can imagine that it will accelerate with the development of all kind of digital solutions. The overflow of information means that we are bombarded with messages on a daily basis, which consumes a large and increasing proportion of our working days. This huge and one-way range of information also has an important social dimension. The more we are fed information, the more difficult it is for us to see societal contexts. Amongst this cacophony of information, we find it difficult to sort substantial information from trivialities and we cannot be sure that the information we receive is not misleading, as the transmitter may, for various reasons, have grounds for dis-information. Just over half a century ago, a large proportion of the information we received was conveyed or sent by people we somehow knew and had a social connection to. This entailed a certain amount of social control, an opportunity to ask questions and to ensure continuity. Information a century ago consisted mainly of local information, but today the ratio is the reverse, which tends to make the world somewhat incomprehensible.

In the scientific world, the conditions are the same. Every year, research reports and scientific articles are published around the world. Every year, supply is increasing, to the point where it can be difficult to orient oneself among the flood of reports and articles. The old type of researcher, who was well versed in both the natural sciences and the humanities, is becoming increasingly rare. Researchers may even have difficulty keeping up with what is happening in their own area of interest. For interested and knowledgeable people who are outside the scientific community, the difficulty of finding the right one can become insurmountable. In the MARA project we addressed that problem by accessing scientific competence through collaboration with Dalarna University.

6.3.2.2 Rapid knowledge change

People and organizations everywhere face changes on a significant scale. Management researcher Peter Vaill described this poetically when he says "We are all living in permanent white water". (Vaill, 1989) Twenty years ago, management literature was filled with references to planned changes. Today, it is mostly about different ways of dealing with all the change that is being thrown at us by an increasingly chaotic environment. Managing change has become important not only in

organizations but also for individuals and in family life. Winds of change also affect the knowledge mass. Knowledge that was "true" yesterday may be wrong today; today's "truth" is tomorrow's "lie".

An example of this kind of change is the new airport I Rörbäcksnäs – close to Sälen/Trysil. It has the capacity to change mobility patterns in the area. It might attract new groups of tourists that are well-off – a group that has been described as global nomads (Richards & Wilson, 2004)

The high rate of change means that professionals' knowledge and skills must be continuously adapted and renewed. If employment is seen as an investment, it is not unreasonable to expect that previously dedicated knowledge is gradually consumed or rather becomes obsolete. If no maintenance takes place, the investment will eventually cease to contribute to added value. This aspect should be considered when choosing people to participate in the mobility planning process.

6.3.2.3 Knowledge and values

Of course, new knowledge and development activities do not automatically lead to anything positive; both can also have negative effects for people and for businesses. The world is constantly evolving, the extent to which we think it is getting better or worse varies. An Estonian woman from the former Swedish island of Wormsi told one of the authors of this report, after living through 50 years of Russian occupation:

"I wonder how long it will take before we have got so far that everything will be as before."

An important perspective that is often lacking is precisely what the Estonian woman expressed, namely the valuation perspective. What knowledge is conveyed? How can new knowledge affect other factors in the users' life? What can it mean to be exposed to knowledge transfer? What are the consequences of knowledge for those exposed to it?

Knowledge does not necessarily lead to anything positive. It can also lead to bigotry when trying to squeeze in reality to suit the methods and tools you have within your own area of knowledge. If you have learned a certain treatment methodology, for example in psychiatry, and have also been successful with it, there is a risk that you may want to use it too often, even in situations where it is not the optimal method. This suggests that knowledge transfer should include phases where the user comes into focus and the new knowledge can be put into a larger context in the users' life and valued and tested accordingly.

6.3.2.4 Know-how and know-why

The conditions described above raise several important questions about how information/knowledge transfer is organized and how users value knowledge. Therefore, for many professions it is therefore important that the focus of knowledge transfer is changed from the traditional broadcasting perspective to a user-centered perspective. One conclusion is the way how professions should be informed about knowledge is less important than how they should inform themselves about knowledge. The emphasis should shift from passive to more active information. It underlines the need to learn to seek current knowledge and to be able to relate to and value it. Pure learning of a traditional educational nature can be a waste of effort. It is more important to know how to ask the question ("know-why") than to have gathered a body of knowledge ("know-how"), which may quickly become outdated.

A conclusion based on previous studies is that the professional is the one who has the opportunity to ask a lot of the questions that are relevant in the work situation and who also has the interest and motivation to seek knowledge that can help to provide an answer to the questions. But theoretically being able to ask questions is not the same as being able to implement it in practice at all times. A stated area of concern is precisely how to ask adequate questions, how to circle problems, how to make strategic priorities and put their work in a wider context. The ability to absorb new knowledge depends primarily on one's ability to identify and pronounce one's goals and needs and, from this, sharpen their question. Learning to ask the question is the primary goal – the question is the answer. This relationship underlines the importance of learning to make problem formulations yourself, seeking knowledge, relating to new knowledge (that is, critically reviewing and evaluating), conducting external analyses, setting priorities, etc.

In this context, the issue of knowledge networks becomes central. It is not the content of knowledge that is central, but the ability to critically evaluate, reassess, and adapt knowledge to one's own reality, which is the primary goal and where networks can play a major role. The discussion above about information overload, knowledge change, and values can play an important role in the planning processes for mobility.

6.4 The planning process and gender and equality

Social aspects are important issues in the transportation area and indicate considerable challenges for transport planning and traffic safety. However, such aspects have been rather neglected and are sparsely seen in the research field. In order to integrate gender and equity in the Integrated Action Plan, we were assisted by the Swedish National Road and Transport Research Institute and their

R&D program on gender equality and diversity in the transport sector (VTI program Mobility, social inclusion and justice). Extracts from their presentation of the program show how activities within their research area, research, and investigative activities are being conducted with the aim of deepening the knowledge on social sustainability, social consequences, and welfare consequences with regard to practices among different groups, their preconditions and requirements in relation to mobility and access to transportation. An important aspect is how equity and inclusion can be ensured for individuals and groups in a diversified society.

Within this research area, both social and institutional conditions are taken into account, such as research on policy and practice with regard to different actors, and the mobility, power, and inclusion of different groups in planning, designing, and maintaining transport solutions. The research may involve studies on social disadvantages resulting from existing or planned transport infrastructure (such as safety), studies related to transport needs, evaluations of social consequences, studies on public participation, and the inclusion of a traveler perspective. In the research area, studies are also being conducted on how different practices and everyday activities can be understood in relation to mobility and transport infrastructure. One focus, according to the research group from VTI, is to understand how different groups of travelers organize their everyday life in relation to transport infrastructure and mobility; another is the interaction between "experts" and "non-experts" and how one can understand the communication of knowledge between them in a transport context (for example, consultation procedures, training of road users). Working with the SCM-method, gender and equality aspects have to be included. That can be done in a variety of ways. Some of them are discussed below and are based on a summary in the article entitled "Gender contract and regional development in Dalarna" (Stenbacka, et al., 2011).

Local traditions in education, labor market, and everyday life constitute lingering tough structures. If these are recognized, there are opportunities for reflection and change. In functioning labor force need young people's educational and career choices to be consistent, efforts are needed to change and erase the traditional image of certain professions being for females or males, and especially their social skills. It is becoming clear that training in social skills is required in all vocational training courses, not just those related to female-dominated professions such as healthcare, service, and trade. More and more young men and women are breaking traditional boundaries and setting examples for others to follow, but young men who choose untraditionally are not encouraged as much as women. Responsibility for change should not be left to the next generation; all actors should look to their ability to help develop a more equal society. Gender relations are an important

part of young people's view of the local labor market and their sense of the locality. The labor market, in turn, is of great importance for decisions to stay and the will to possibly return. For young people's strategies, their perception is more important than what it "actually" looks like. By paying attention to other images and opportunities, new strategies can be developed.

Attracting young people to move back to where they grow up is usually a priority area. Protecting those who remain and, by extension, giving a more positive picture of those who choose to stay, should also be highlighted. In the young generation, both men and women want to take parental leave and care for their aging parents. It is important to work for good opportunities for these statements to be translated into action. Young women have different strategies for challenging prevailing norms about how they are expected to behave. Studies show that women have a strong voice when a young family decides where to live. The woman often has the main responsibility for the family. Mobility opportunities are an important part of that.

Strategies can be about challenging the actions of the female majority and investing in jobs in male areas of activity. Another strategy is to engage politically, combining traditional femininity with untraditional leader engagement. A future challenge for young people is to renegotiate and question the norms that govern how men and women are expected to be. In so doing, new structures are being built that are consistent with their image of an equal society.

In the work with an SCM, it is possible to create the conditions and interest to participate in the development and working life of the local community and there many local actors can participate. This applies not least to the possibility of developing cooperation with local economic and cultural life. Influencing and changing habitual patterns of action requires time and training, but also reflection and insight into the consequences of them. In various forms, key players as well as young people or others in the population can be practiced in deconstructing gender structures. In working life, at school, in leisure activities, patterns can be dismantled and reassembled. The work with "Strategic Choice of Measures" in the transportation sector can be one such occasion. To develop and increase gender and equality issues in the planning process, it can be an advantage to pick participants with knowledge and interest in these matters.

6.5 Unclear chain of command and diffuse financing

The planning method "Strategic choice of measures-SCM" was developed by Trafikverket in 2013. It constitutes an arena for early dialogue between main actors and stakeholders at the local, regional, and national levels to jointly assess transport-related problems and develop solutions.

The Trafikverket, in collaboration with stakeholders, has conducted such a planning process within the Sälen area, which resulted in quite a few suggestions for activities to improve the transportation. Interviews with people who participated in this study provided a picture of a highly respected and useful process. However, when it comes to implementation, the interviews indicate the problem of the "chain of command" – it seems to be unclear who has the lead in the fulfilling the process.

6.6 Financing SCM and Step 1–2 measures

When an SCM is completed, a decision is made on continued handling. With regard to steps Step 1 and 2 measures, there is no statutory process for how the measures are to be taken forward. Against this background, a study was carried out on the conditions for Step 1–2 measures after the completion of SCM (Fernström A, Johansson &Tornberg 2016). The study is based on the basic assumption that the likelihood of measures being implemented is higher if there are actors who are justified in implementing the measures and if obstacles or inhibitory circumstances at the same time do not outweigh this motivation. Commitment is required from participating actors. Trafikverket's own ability to assume responsibility for Step 1–2 measures is surrounded by a number of limitations, such as available budget and terms of what Trafikverket has formal possibilities to do (especially in the steering documents that regulate Trafikverket's mission).

Trafikverket may finance from a national and regional level, partly in terms of internal procedures that affect the agency's ability to work based on these possibilities (such as the possibilities of ordering Step 1–2 measures internally, the possibility to use maintenance measures, as well as support systems and internal aids). Many Step 1–2 measures fall within the responsibilities of other actors and, in practice, the implementation of these measures often depends on actors other than Trafikverket. Trafikverket's mandate to work with Step 1–2 measures is largely clear to many at the Trafikverket, but in concrete cases there is sometimes a grey area, especially regarding information and non-physical measures in another actor's area of responsibility. The ambiguity and uncertainty about whether the Swedish Transport Administration has a mandate to finance and work on these measures risks leading to the measures not taking place.

This also risks contributing to unclear signals to other actors, which can contribute to unrealistic expectations and the risk that the Trafikverket will choose not to implement measures in these grey areas to avoid mistakes. In some cases, the commitments of other actors to implement Step 1–2 measures may be achieved through formal agreements implementing measures. However, the

study concludes that the conditions for the implementation of Step 1–2 measures after the completion of SCM do not necessarily need to be created in the form of formally binding agreements, injunctions, or other documents with legally binding status, although this can be expected to strengthen the conditions. Instead, it is concluded that if Step 1–2 measures are to be implemented, it is necessary to work on the factors that influence relevant actors' perceptions of what they want to do, what they should do, and what they need to do. Anchoring and participation are prerequisites for agreements. All of the SCMs studied in this study have dragged on. The original timetables tend to be overly optimistic, for several reasons. These include the fact that the anchoring problem is often underestimated; because the issues turn out to be more complex than initially envisaged; and because practical circumstances make work on the road more difficult (for example, that consultants or staff have been replaced). Therefore, the way in which the process is carried out is of great importance for the result that comes out of it. Many actors associate the SCM with SCM's workshops. One often participates passionately and perceives the workshops as positive, but then goes home and waits for the Trafikverket to return. To be the bearer of the result, one must feel part of the process. It may require more than one invitation for this sense of participation to arise, which represents a major challenge in the achievement of a process that promotes commitment on the part of the stakeholders.

6.7 Look out for parallel planning processes

The method Strategic Choice of Measures is just one planning process. In this section of the report we will give an example of such a process in ÅRE/Duved, where a planning process named the Duved Model was launched in January 2018 as a pilot for the future of urban development. An important part of the SCM method is to scan the surroundings for parallel activities and, when suitable, dock them to the planning process.

A goal for the Duved model is to transform Duved into a pilot for the future of civil engineering. This is based on two parallel starting points: global needs and opportunities, and local needs and opportunities. The development has been based on what exists and those who live in Duved. Since its inception in 2018, the work has been based on citizens' thoughts and ideas through a series of workshops and the intention is to create a process that leads to citizens owning their own future. The work focused, from the start, on creating innovation through parallel development of the whole society – housing, work, food systems, culture, school/education, street rooms/public places, and service/culture – precisely by developing all segments in parallel. The work was started by the public utility Årehus AB with Eau & Gaz as partners to develop a strategy. This was done with the intention of creating a more accessible society, which in 2019 led to the formation of Duved Framtid AB (Duved future Ltd), a network company. The actions to be implemented are

based on collaboration between all parties involved and will generate innovative local solutions to housing, work, food supply, social services, cultural activities, circular economy, energy systems and direct democracy, which together make up the Duved model. The actions will also serve as prototypes and as a basis for further development and scaling up nationally and globally.

6.8 Culture clash

Some of the interviewed stakeholders expressed frustration over slow processes within the Trafikverket and could not see the reason for that. They conveyed a stereotypical picture of national administrations as bureaucratic and rigid. At the same time, it was obvious that they were not updated on the rules and laws that a national administration has to fulfil. Every stakeholder identified in the MARA project has regulations and mandates to relate to. In order to have a good dialogue with the stakeholders, it is vital that Trafikverket have an insight in the realities each stakeholder has to live with and also respect those. Trafikverket has a responsibility for the vast majority of traffic issues and must take that into account when planning measures in the traffic environment, something other stakeholders not always are aware of. In order to truly listen to other people conveying their knowledge in a meeting, one must be prepared to accept the person supplying that knowledge. A feeling of trust must develop between the stakeholders based on insights.

6.9 Implementation

An initial step in the implementation work is identifying possible target groups. People who work in the transport field are naturally in the first line to enter and are, of course, naturally the stakeholders involved in the planning process. But that is not enough; it does not have to be groups of people that directly are working with mobility issues. You have to think broadly and ask, "Who might be interested in the work we have done?" When the target groups have been identified, the question arises as to what criteria they use when looking for new knowledge. Relevance for their work is usually an important one. Another one is how trustworthy they find the source.

The implementation process started at the very beginning of the MARA project. The workshops, the interviews, and the reports are all part of the implementation.

7. Summarizing key findings from the Swedish case in the MARA project

The aim of this report has been to summarize analytical activities conducted within the Swedish case as part of the MARA_mobility project.

The key findings from the analysis in the report have been presented in previous sections and are now summarized under the two headings: *improving the planning process* and *GIS maps as analytical support.*

Added to these should also be the valuable inter-regional cooperation and knowledge sharing that the project has brought to us as project partners. In sum, for the practical use of the project results, the MARA project results will in the future lead to a better dialogue between the business community, the municipality and state agencies like Trafikverket and regulators that has potential to pave the way for introduction of new mobility technologies such as on demand autonomous buses, drones and sharing solutions.

7.1 Improving the planning process

The interview part of this report, together with R&D results, form the basis for this analysis. The report has also looked into the SCM from different perspectives as gender, regional development, financing, culture clashes, chain of command, thus identifying problems in the process and suggesting countermeasures.

One suggested improvement is to increase understanding of how Trafikverket can, as early as possible in its planning, interplay with different stakeholders in the region that have an interest in transportation. The question affects some crucial factors that have been raised in this project.

Various stakeholders were listed in the project plan for the MARA project. Still to be added are actors that, in different ways, could be important for the success of the process. To identify actors that are important but not so visible(/easily found or identified) are important and requires special methods which are presented in the report.

The dialogue with relevant stakeholders will gradually lead to new knowledge and new measures to be integrated in their work. Having a flexible way of working has been identified as a crucial factor for success.

The interviews with the involved actors have identified some important prerequisites in order to further develop the planning process. One is continuity and the other one is to define perspectives on knowledge and competence development; these perspectives include:

- Information overload - Rapid knowledge change - Knowledge and values - Know how – know why
Working with the SCM method, gender and equality aspects have to be included. For example, it can be an advantage to chose participants in the planning process who have knowledge and interest in these matters.

Trafikverket, in collaboration with stakeholders, has conducted a planning process within the Sälen area, which resulted in quite a few suggestions to activities in order to improve the transportation. However, when it comes to implementation, the interviews indicate a problem with the "chain of command" – it seems to be unclear who has the lead in the fulfilling the process.

The SCM is just one of several methods. It indicates the importance of scanning the surroundings for parallel activities and, when suitable, docking them to the planning process. The participants in this planning process have different cultures that must be recognized and made visible and respected.

7.2 GIS maps as analytical support
The report has included mapping of the existing mobility offer using GIS maps in the case areas. The analytical functions developed as part of the MARA project to produce mobility GAP analyses have been used an example the visualization of the discrepancy between the public transport offer and accessibility to hotel facilities. This result is an example of how the GIS maps can be used as analytical support in the planning process by better visualizing a current mobility situation and a mobility GAP.

The pilot PPGIS study conducted as an initiative to improve the current planning process in early stages is another example of where GIS maps improve the visualization of a perceived problem related to mobility. The study results show that the location that respondents perceived as having the most problematic mobility situation also coincided with the location having a big mobility GAP, based on performed analysis.

The piloting of PPGIS to improve early-stage planning within STA planning process showed potential, especially for pointing out gender differences, to make improvements, but it was done in a small scale. Further research is needed to fully assess its potential. This could include a larger sample and also studying other stakeholder groups, such as residents, second-home owners, and business owners.

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