

Pilot in Sauda

Demand-Responsive
Transport to ensure
accessibility, availability
and reliability of rural
public transport



HENTMEG PILOT IN SAUDA, NORWAY

Starting and ending date of pilot

01.07.2018 – 29.02.2020

Map

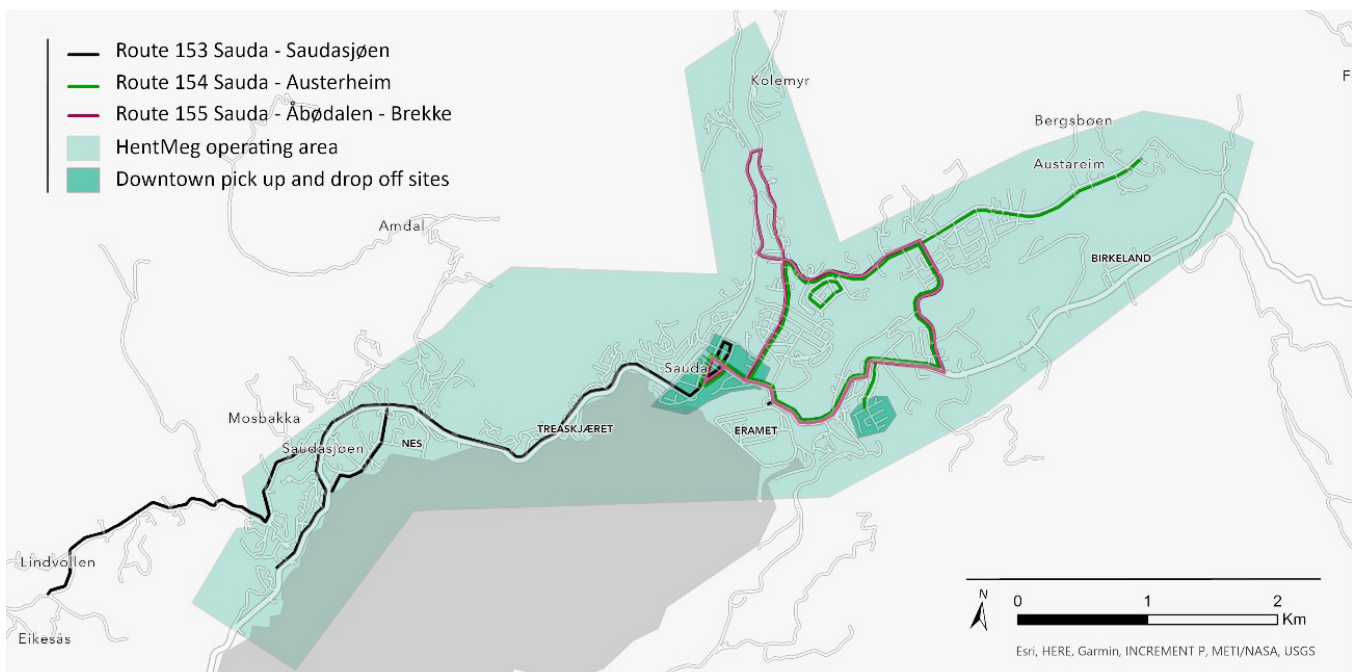


Figure 1: Illustration of the HentMeg operating area.

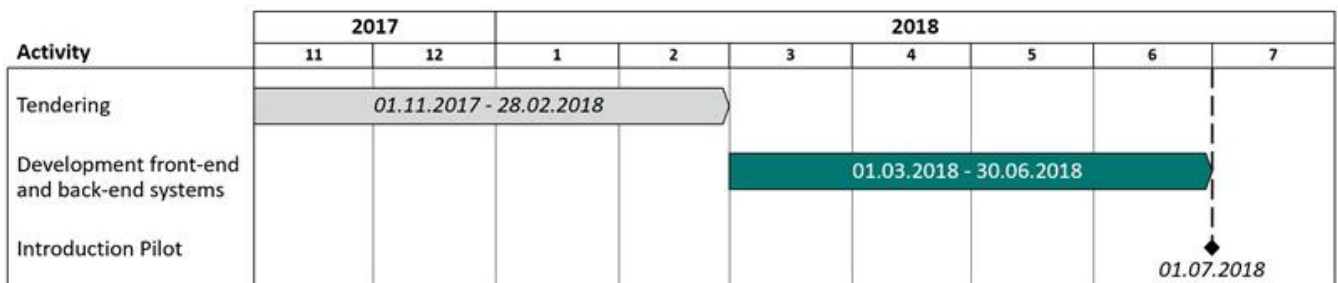


Figure 2: Timeline of the development process for HentMeg in Sauda

SHORT INTRODUCTION TO THE PILOT

The pilot is organized by the RESPONSE project partner Kolumbus, a bus and boat operator and mobility provider in the Rogaland county in Norway. The pilot is carried out in the town of Sauda, Western Norway.

Pilot audience

There are two main target groups for Sauda pilot – the elderly during the morning hours and younger people during the afternoon.

Aim of the pilot

The pilot aims to provide door-to-door service in a region where there are few travellers and where people are not happy because of the low frequency of the local bus. The goal is to see if a different and better service could be provided for the same amount of money, making customers happier.

Covid-19

HentMeg has provided the public transport in Sauda with DRT service throughout the whole project. There were a few challenges around paying in cash since the drivers did not want to handle cash due to Covid-19 risk. Also, there have been fewer passengers, especially when everything was closed in Norway at the beginning of the pandemic.



EVALUATION

Organization of the pilot

The HentMeg service would replace the regularly scheduled buses during the periods with the least passenger occupancy – on weekdays between 9-14 and 16.30-20, and Saturdays between 10-15. A year after Kolumbus launched the HentMeg pilot, some adjustments were made to the service. The HentMeg service was expanded to include service during school holidays. As a result, HentMeg was available on school holidays from 9-20 on weekdays.

With HentMeg, Kolumbus wanted to control the front-end system simply because the customer is a Kolumbus customer and Kolumbus, therefore, prefers to have full control over the customer interface. Also, this enables easier integration with their other services and the customer will not notice if the back-end supplier is changed. Kolumbus chose to purchase a back-end system tender that was decided upon in February 2018. They then worked with the first development phase of the front-end until the launch of HentMeg in July 2018. After the initial launch, Kolumbus continued to improve both the front-end and back-end, also trying out different configurations for the service to achieve the optimal balance between co-riding and service level. This required the use of in-house expertise in user experience and external software development. The software development itself was in line with standard web development principles. Still, it required high-end knowledge to package relatively complex functionality in a very user-friendly and fluid user interface.

The plan was to use some driving capacity from the local taxi company and use this to fill the bookings for HentMeg. Due to the limitations this would inflict on the service level to the customer, this became too difficult. Consequently, Kolumbus decided to lease a car to fill the orders for HentMeg. The developers initially wanted to set a two-hour limit for booking in advance to differentiate the service from a regular taxi service. The idea was abandoned, as the limitation would decrease the system's flexibility from the customers perspective. This makes it possible to choose the option to be picked up by HentMeg "As soon as possible".

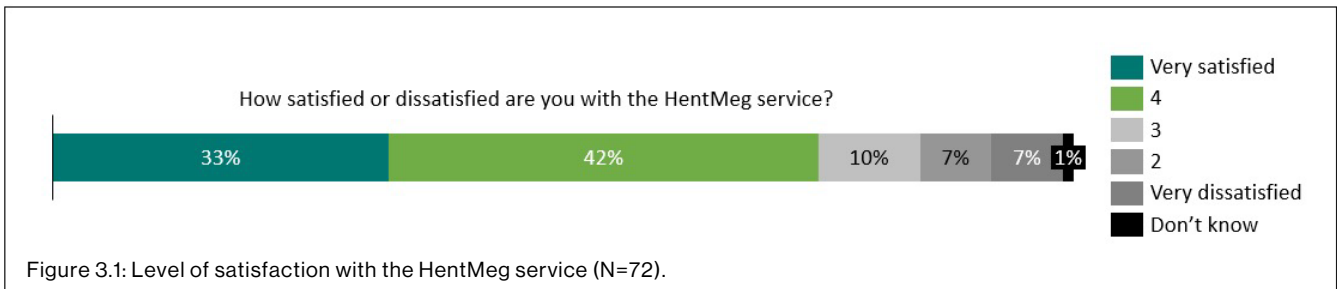
Since the launch, Kolumbus has expanded its front-end platform to become a national service. Kolumbus bought the domain and now also hosts HentMeg services for the Norwegian cities, Kongsberg and Odda. Currently, the service is a web app, but Kolumbus is also working on launching the service as a mobile app, as this will give a more seamless digital integration with other Kolumbus services. In Sauda, there is a significant proportion of older users, and telephone orders account for approximately one-third of all orders.



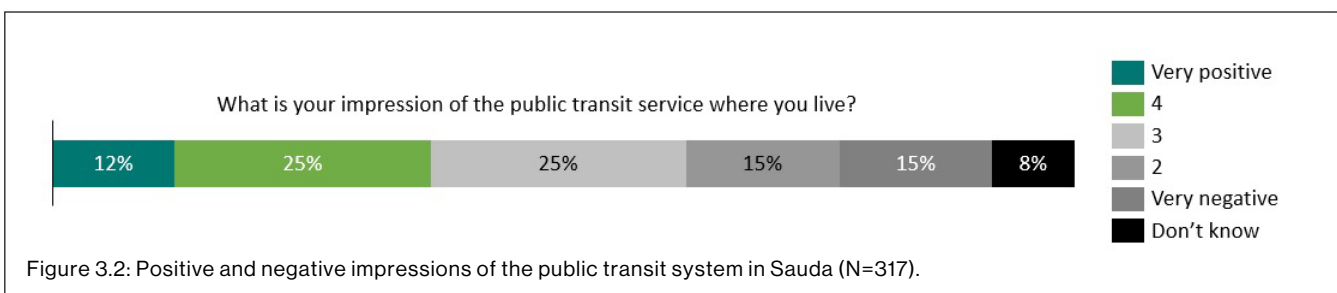
Customer experience

EPINION was commissioned to do a survey to assess customer satisfaction for the HentMeg service among the population in Sauda. The survey was conducted as telephone interviews in October and November 2019. The total number of surveys amounts to 317. Among the respondents, nearly all (99%) were familiar with HentMeg. A slight majority of the respondents were women, and roughly half of the respondents were older than 60.

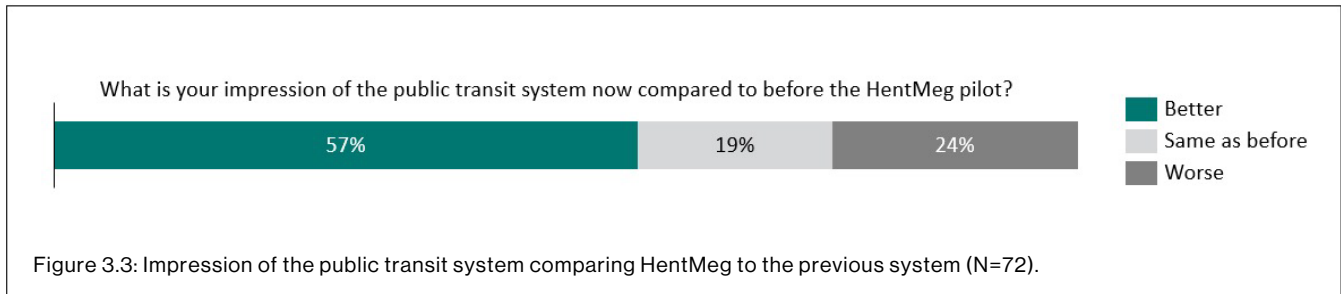
Of the people surveyed, 23% had tried the HentMeg service. Most of the survey respondents who have tried the HentMeg service were either satisfied or neutral in their opinion of the service. The survey results also reveal that HentMeg is primarily used by people who are already used to travelling with public transportation, including buses. However, the results also show that how frequently the respondents travel by bus is less important for whether they have tried HentMeg or not.



Of the people surveyed, more than half had either a positive or neutral impression of the public transit service where they live. The results show a slight tendency among those 30 years or younger to be more positively inclined towards the public transit service. Likewise, the results show a propensity for people over the age of 60 and retirees to be more negatively disposed towards the public transit service than the total pool of respondents.



Most of the people who have tried the HentMeg service have a better impression of the public transit system now than before the HentMeg pilot started. Retirees and respondents over the age of 60 are overall of the opinion that the new service is better or the same as before. Simultaneously, the survey results propose that more respondents in these groups think the public transit system has become worse since the HentMeg service launch than other demographic segments.



Cost - benefit

The experience from Sauda shows that HentMeg is not necessarily a measure to reduce costs and emissions compared to costs and passengers before and after introducing the service. On-demand services have a lower rate of passenger kilometers per vehicle kilometer than cars. Even with two passengers in the HentMeg vehicle, the vehicle kilometers increase more than the passenger-kilometers. From an environmental perspective, this implies that it would be better if all HentMeg users drove their own car.

Furthermore, the marginal cost of the service is negative, in contrast to the regular bus service. This means that it is not cost-effective to increase travels – unless the degree of co-driving increases.

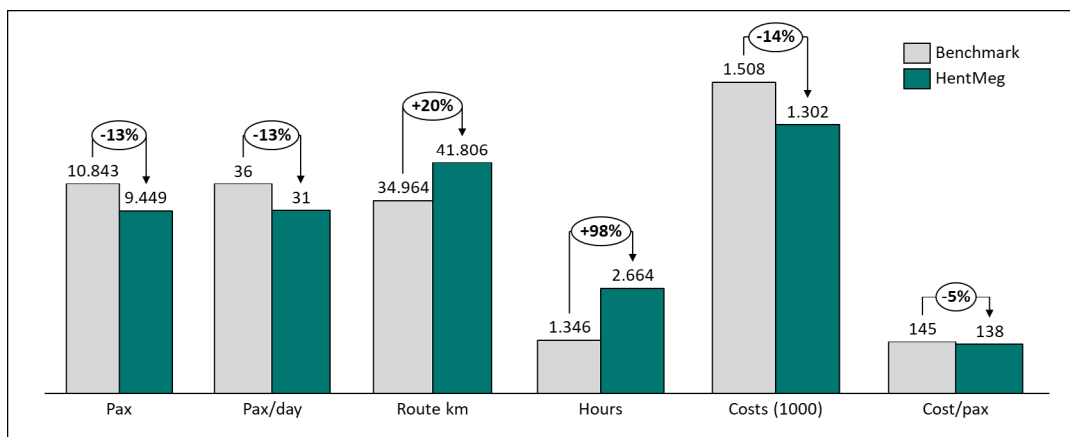


Figure 4: Change in key parameters between the benchmark period and HentMeg.

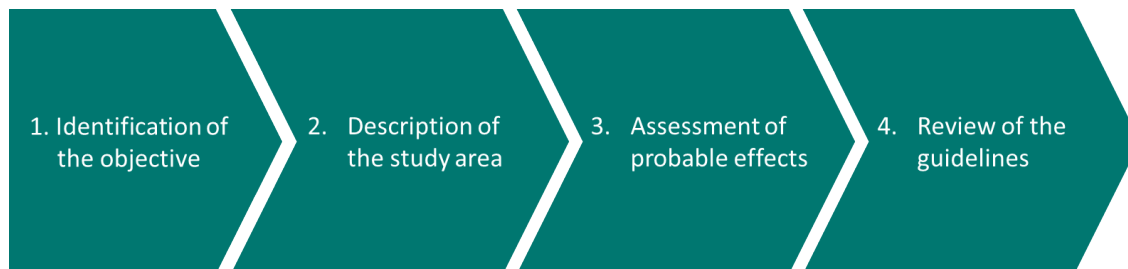
Total costs are reduced by 14 per cent, mainly due to the smaller vehicle with lower capital and operational cost, but also because of fewer passengers.

CONCLUSION

One of the critical lessons gained from this pilot is that HentMeg is not a cure-all for sustainable, cost-efficient transportation in rural areas. Diverging geographical locations and departure times make it challenging to achieve co-driving, even though the algorithms are designed to do this. Thus, it is not an algorithmic problem, but rather it is the population distribution in the area that is the cause. On-demand services have a lower rate of passenger kilometers per vehicle kilometer than cars. Therefore, this product must be viewed as a transport alternative for travellers with limited options.

Further, it is not a goal to get as many users as possible as they have a negative marginal impact, in contrast to buses. If bus service is to be replaced by a service like HentMeg, it requires very few passengers to obtain similar cost levels. Otherwise, a service like HentMeg is less cost-efficient than a regular bus service. Although users in Sauda are on average more satisfied with an on-demand service, on-demand is a disadvantage for those who travel at the same time regularly, such as travels to and from work. In Sauda, there were few such trips, as most trips by bus were made by the elderly and teenagers.

Below, we describe a four-step process that can be used in the assessment of the pilot:



1. The first step is to identify the objective of introducing an on-demand transportation service. Examples of such an objective could be improving the offered service, better facilitating specific groups of users, or contributing to financial or environmental benefits.
2. After determining an objective, one should carry out a thorough description of the relevant area and the existing public transit system that the on-demand service is intended to replace.
3. Following the initial description of the market, overall assessments should be made of whether one can expect similar economic and user effects as what was found in Sauda.
4. Based on the initial description and analysis, the on-demand service is assessed according to the following guidelines:

GUIDELINES

- On-demand is typically suitable in a limited area with shorter travel lengths and a travel need that is more dispersed and varied (both in terms of the time of day and destination). Typically, suitable in districts where the passenger base is insufficient to offer flexibility in the fixed-route system.
- On-demand is typically suitable in areas where many people have limited access to bus stops and where distance and terrain provide poor walking conditions.
- On-demand is by design more beneficial to the elderly due to providing door-to-door transport. On the other hand, Sauda's experience shows that older people are less satisfied with the on-demand service, mainly related to difficulties with booking the service at the desired departure time.
- On-demand is typically suitable if the current public transit system has few departures (less than 1 per hour). In such cases, the on-demand service may result in improved customer satisfaction.
- On-demand is suitable if the load-factor of the existing routes is low. In such cases, the on-demand service may result in reduced costs.
- On-demand is less suitable if there are many correspondence points to other public transit services (bus, train, boat/ferry). On-demand service will not have regular correspondence to other public transit services.
- On-demand is less suitable if the service leads to many "unnecessary" trips that seize the service's capacity. This can be avoided by introducing pick-up and drop-off zones in areas with frequent short trips and excluding certain ticket types from the service, such as school bus tickets.
- On-demand is less suitable if the primary goal of introducing a public transit service is to reduce emissions. Experience from Sauda showed that HentMeg had higher vehicle kilometres per passenger kilometre than cars.



Response



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