

Summary:

Innovative collective mobility solutions – carsharing as a case

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The pressure for phasing out fossil fuels and reduce pollution and congestion has increased the search of new modes of organizing and limiting car use. Carsharing means that members use cars owned by an organization or company. It offers to its members many of the advantages of car use, while at the same time getting rid of the costs and hassles of car ownership. Studies have shown that carshare members use car one third less than car owners and that a shared car substitutes 5-15 owned cars. With fast progress of intelligent mobility services connecting cars with users, carsharing might escalate as a significant alternative to private car use in the years to come. A more convenient carsharing service might, however, enhance mobility – with a car. Only when carsharing actually contributes in reducing car use, it deserves the notion of a ‘sustainable mobility’ solution. It also has to encompass a much larger share of the population to be an important transport solution, not only a small-scale niche product.

Whereas a car of one’s own once may have represented the ultimate symbol of freedom and independence, today a certain car *dependence* is increasingly addressed, both individually and collectively. Owning a car – in the city – appears less as a benefit. Private cars are mostly parked all day, occupying space. In average they are used less than half an hour a day, and represent a large share of a household’s costs.

Carsharing as a sustainable mobility solution

The aggregated and collective costs of car traffic are strongly emphasized. Not least when it comes to environmental and climate policies, carsharing has been given a particular emphasis. When fewer cars are shared by more car users, the total number of cars on the roads may be reduced and the emissions decrease. In addition the pressure on the urban parking areas is reduced. It is also environmentally beneficial that shared cars are newer and generally make use of vehicle and fuel technology improvements faster.

To be environmentally friendly, carsharing has to be *complementary*, not *competitive* to the environmentally friendly transport solutions - public transport, walking and cycling. There is, however, a question of the extent to which carsharing actually reduces car use or not. Carsharing enhances mobility possibilities and provides people with access to a car which they otherwise would not have had. This is a central argument in Urbanet’s evaluation of carsharing as a

climate policy measure from 2007. It is a possibility that might be even more enforced the more convenient carsharing becomes, as a web-based mobility service with apps on the smart phone that easily connect shared cars with the users.

A comprehensive and updated state-of-the-art of carsharing concludes however that environmental impacts of carsharing so far has proven beneficial: *“The research results make strikingly clear that Car-Sharing offers a noteworthy contribution to the reduction of the burden on transport and the environment. When integrated with the eco-modes (public transport, bicycle and walking), Car-Sharing presents a city-friendly and environmentally-friendly car component that is employed selectively and sparingly by its users. To sum up briefly: Car-Sharing contributes to serving the public good in a sustainable transport system”* (momo 2010).

Various studies have shown that carshare members drive two thirds of the distance typical of a private car owner. The estimates for how many private cars a shared car substitutes, vary more, due to contextual factors like time, place, the type of car, and user characteristics. The per kilometre emissions are by and large calculated to be approx. 20 percent less from shared cars than from private cars. Carsharing’s contribution to a reduced amount of cars on the roads is seen as particularly important in the big cities. (ibid.)

Carsharing is often viewed as complementary to public transport, but is a more simple and flexible system to establish, since it does not depend on huge infrastructure investments. Carsharing might rather fast and immediate become an alternative to the private car, not least important in a long-lasting development and construction phase of new public transport infrastructure. A presupposition for carsharing to be an emission reduction mobility solution is, however, that the use of carsharing expands and escalates from carsharing solely as a small scale niche product as it is today.

Aim and outline of the study

This project has aimed at discussing what are the premises, and barriers, for a larger break-through for carsharing in the years to come, particularly by use of new mobility services through the user-friendly application on the smart phone. The study is explorative, as a discussion and knowledge base for policies and further studies. By presenting the updated literature, the state of art, on carsharing, and in addition make use of informant interviews with key carsharing actors in Norway, we have taken a closer look at the Norwegian carsharing schemes and their specific challenges. We also bring in a theoretical perspective on the presuppositions for carsharing to reach a tipping point from a minor niche product to becoming a significant societal innovation. Finally, we discuss some policy implications of a larger launching of carsharing in the Norwegian context.

Enhanced potential for carsharing

Carsharing is one solution meeting the problem of too many cars with too much emissions in urban areas. Carsharing is an innovative form of collective mobility solutions where car ownership is deprivatized. It represents one solution in the search of new organisational forms of more climate friendly transport.

Around four thousand car users are attending Norwegian carsharing schemes today, which represents a rather fast growth since the first car club was established in 1995, reaching 100 members in 1998. In Switzerland there are almost 100 000 members in a population only 50 percent larger than the Norwegian. A similar Norwegian share would imply a potential of 67000 car sharers. The Swiss mobility solutions’ success is explained by a particularly strong coordination and mutual agreements with the public transport system, and a well-established collaboration with other consumer services (retail, post, car association). In addition, a strong communication and promotion has provided carsharing with a good *image* both for the companies using shared cars and the individual carsharing member.

The figure below shows the growth in carsharing from 100 members to 4000 today, and suggests a future potential by three different growth curves. The exponential (yellow) curve fits well with the development in the first years, but is unrealistic in the long term. A function that usually fits well for social innovations and transformations is the S-curve, the orange curve, i.e. a weak growth in the first stages (given time on the x-axis) and a strong growth after a while, which declines and flattens when the growth has reached a certain level of saturation. In the figure the estimate of the limitation value has been fixed to approx. 50000.

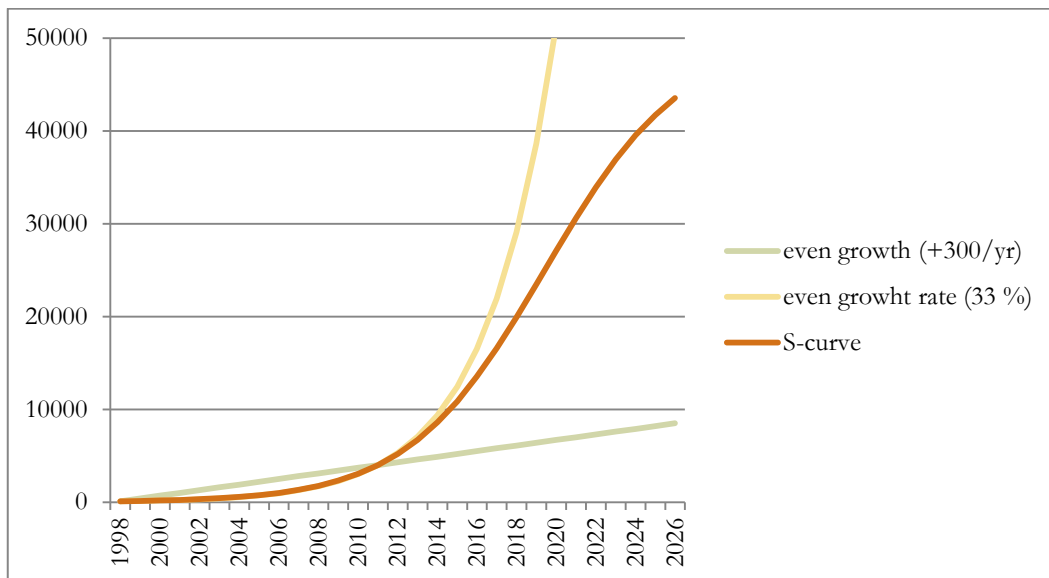


Figure: Carsharing in Norway – growth and potential

Several interacting driving forces might be seen as facilitating a further development and escalating of carsharing in the Norwegian context: An increased *urbanization*, densification and moving into cities, makes it more easy to live close to the carshare stations. Technological and organizational improvements like *digitalization* and *user organized services* and solutions have facilitated the so-

called self-service society based on self-organized and web-based solutions. An early term for carsharing – *self-drive taxi* – is thus illustrative.

Both the appropriate hardware and software for new carsharing solutions are already in place. In Norway there is particularly fast growth in Internet subscribers and smartphone users. At the same time, Norwegian carsharing schemes seem to have been established with beneficial and viable organizational and business models, either member based as a car collective entity, or as a consumer based, commercial service.

A couple of nearly paradoxical features make collective mobility solutions like carsharing particularly promising in the Norwegian context. First, it is the very *modern* characteristic of an exceptionally high share and growth of Internet and smartphone users. Second, it is the very *traditional* Norwegian specificity of communal organization, common property and civil societal task sharing. To put it shortly, there are reasons to expect particularly beneficial presuppositions for collective mobility solutions precisely in Norway.

Carsharing and theories on societal innovation

To understand the basis for carsharing to escalate and move away from the small niche market, it is interesting to view carsharing in light of some theories on innovation and social change. A common feature with tipping point theories and systemic innovation theory is the idea of fast and unexpected development changes. Such innovations often follow an S-curve as presented above. The theories emphasize that also (innovative) small groups might have crucial influence on the development. Carsharing companies obviously represent innovative niches within the Norwegian mobility system.

The question is whether we are close to a tipping point in transport policies where alternative solutions will expand radically, at the sacrifice of private car ownership. Or whether these solutions will be co-opted, assimilated and turned down by existing ‘car regimes’. These shifts might happen suddenly and unexpectedly, determined by small changes that make existing systems out of equilibrium or balance. The key drivers will not necessarily be new niche actors. Rather the triggering factors might for instance be new technological communication solutions making carsharing more simple and convenient – or policy change specifically targeting car use in cities. Important factors are, e.g. 1) the quality and the user’s acceptance of the services; 2) how (and by whom) the idea and concept of carsharing are communicated within social systems; 3) what kind of changes that occur among the dominant political and commercial actors; 4) what kind of alliances and relationships carsharing actors and agencies develop with the dominant political and commercial actors and with other niche actors; and 5) what kind of changes that will take place within today’s mobility system and the attitudes among potential carsharing users. For carsharing to escalate to a large scale solution for cities, the phenomenon of a certain critical mass is essential to consider.

Political support for carsharing

A policy classification often discerns between *regulative*, *economic* and *communicative* instruments – in the same way as behavioural change is the subject of *control*, *allurement* or *persuasion*. The various forms, preferably in combination, might be utilized to support carsharing: Private car use can be regulated by driving and parking restrictions in city centres. At the same time, carsharing might be stimulated by parking and driving permissions in city zones and priority lines. Carsharing schemes might be supported directly economically for investments and establishment, and indirectly by access to (valuable) urban area for car share stations and parking spots. Finally, also communicative measures are crucial for further development, i.e. mediation and dissemination of knowledge and information as well as political and organizational networking and alliances.

However, neither in politics nor administration there has been any noteworthy attention towards the newer presuppositions for any break-through for carsharing as an urban transport solution. There are, however, *politically*, a stronger requirement than ever to reduce the use of private cars in the big cities. *Technologically*, the recent innovative possibilities for convenient mobility services as new smartphone apps for both reserving, paying and tracking of shared cars, at the same time carsharing schemes increasingly make use of the most updated cars technologically, in particular elcars. *Organisationally*, various arrangements are in growth, more complementary than competitive, some target the business market and some private users, where both the membership, partnership and business models vary.