

NEW MODES OF DRIVING AND THEIR POSSIBLE CONSEQUENCES: THE EXAMPLE OF CAR-SHARING IN SWITZERLAND

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ABSTRACT

New modes of driving have the potential to modify the way in which motor vehicles will be used in the future. As vehicles are increasingly being designed for specific types of use, they will inevitably be used in more specific ways. One possible outcome of this trend is that vehicles will more and more tend to be shared out among users rather than held in private ownership. The present example set by a Swiss car-sharing company serves to show what is needed for this mode of driving to be able to contribute to the future of sustainable mobility.

1 INTRODUCTION

During the last couple of years, there has been a great deal of interest in new types of vehicles. For example, electromobility is being promoted in a lot of countries and there are many good reasons to welcome a potential breakthrough on this front. These include particularly a fall in pollutant, noise and CO₂ emissions, a reduction in dependence on oil and a possible reinforcement of the innovative capacity and economic strength of the countries concerned. Apart from electromobility, various other techniques, such as downsizing, lightweight construction and the use of alternative fuels like biogas are being applied to minimise the adverse impacts of motorised transport.

Another approach is to modify the way that vehicles are used. Today, most cars are privately owned. People who can afford it have their own car which they use more or less intensively. Moreover, despite the wide range of models available, the cars that people buy tend to be designed for every conceivable purpose from commuting, to shopping, leisure activities and going on holiday. In the industrialised countries at least, cars tend to be large and to have a range of at least 500 km despite the fact that they are mostly used to transport just one person with little baggage over a relatively short distance.

2 POSSIBLE EFFECTS OF NEW VEHICLES

Hitherto, electric cars and other electrically powered vehicles have not been well suited to cope with long distances. For city and commuter driving, however, cars should ideally be as small and light as possible. Over short distances, the batteries needed to provide a range of hundreds of kilometres are simply useless ballast. Nowadays, it makes technical sense to build cars of various kinds for different specific purposes. In other words, the purpose for which the car is used is becoming basically more specific.

This trend could result in passenger transport being organised on a new basis. For example, we could conceive of a traffic chain in which, instead of the car being used for long distance travel, each vehicle can play to its strengths:

- from home to station by bicycle
- from one agglomeration to another by train
- from an agglomeration to a less densely populated area outside by car.

This would result in there being less private transport on longer stretches, respectively between urban centres.

The prerequisites for the operation of such transport chains in the future are fewer privately owned cars and, at the same time, the opportunity to be able to use a vehicle as and when necessary. Other requirements include the availability of a public transport system with sufficient geographical coverage and capacity.

3 CAR-SHARING

In principle, car-sharing means the sharing of a fleet of vehicles through a larger group.

The car-sharing system results in a change in behaviour and a corresponding reduction both in vehicle numbers and mileages. In a study conducted by the Swiss Federal Office for Energy in 2006 [1], 22% of car-sharing customers said that they would buy a private car or cars if the system did not exist. In the absence of car-sharing, these customers would accumulate mileages at the expense of public transport.

Car-sharing helps to relieve the pressure on raw material resources needed for automobile manufacturing and the pressure on land for parking places and private motoring. While traffic is reduced, mobility is maintained. In addition, car-sharing brings home to users the true costs of private mobility. The result is a more rational use of this means of transport in favour of public transport and slow transport (cycling and walking). The bulk of the savings in fuel consumption and CO₂ emissions is generated by the change in customer behaviour and a smaller amount by the deployment of an energy-efficient transport fleet.

4 EXAMPLE OF THE SWISS COMPANY MOBILITY

4.1 Background and development of Mobility

Mobility arose out of two car-sharing companies established as a result of local initiatives back in 1987. At that time, though few people shared cars the two companies grew steadily and started working together from 1991. In 1995, the two original initiatives merged to form Mobility in order to offer their customers the benefits of car-sharing. Right from the beginning, the company set out to achieve a sustainable development with regard to environmentally friendly forms of mobility.

4.1.1 Cooperative

The company has taken the cooperative as its business model and nearly half of its customers are members. This approach supports a long-term strategy and provides a solid basis for independent future development and self-financing. The profits earned are ploughed back into the company for innovation and long-term investment.

4.1.2 Development

During the twenty years since the establishment of car-sharing, there have been enormous changes in the business environment. In particular, customers have become far more demanding with regard to reliability and the user-friendliness of the reservation system.

The constant growth in the number of customers has also made car-sharing operations far more complex.

4.1.3 Success factors

Various factors have contributed to the success of the business model. Not least of these was the prevailing spirit in Switzerland at the end of the 1980s. There were enough ecologically minded people around to want to try out a new model of car use. In addition, public transport in the country was already relatively well developed and reliable at the time and it has since expanded. And then there is the human geography of Switzerland, with the great majority of the population living in close proximity to transportation nodes (public transport and/or Mobility sites).

4.2 Mobility today

The corporate purpose of the Mobility cooperative is to operate vehicles of all kinds along lines that are environmentally friendly and thrifty in terms of fuel and resources, making its fleet commercially available as an ecological and economical alternative to private car ownership.

Today, Mobility has nearly 100 000 customers in Switzerland (out of a population of around 8 million). In 2010, the business achieved sales of over CHF 67 million.

Table 1 - Parameters of Mobility 2009 - 2010

	2010	2009
Customers	96'800	90'800
Cooperative members	43'800	40'700
Percentage of cooperative members	45.2%	44.8%
Vehicles	2'500	2'300
Sites	1'250	1'150
Localities	460	450

Around 62% of the population of Switzerland now have at least one Mobility site in the area where they live. In Zurich, a Mobility site can be reached by a three-minute walk from anywhere in the city.

4.2.1 How the system operates

Depending on the location and availability, Mobility vehicles can be booked round the clock until shortly before the desired time, whether by Internet, Smartphone or a call to the 24-hour Mobility service centre. Once reserved, the vehicle can be collected from the selected site.

To open the vehicle, the customer simply holds his Mobility card to the Mobility checkpoint on the windscreen. The central locking opens automatically. The on-board computer confirms the arrival and displays the reservation. The ignition key will be in the glove compartment unless the car happens to come with a starter button and does not need a key at all. As the fuel costs are included, Mobility provides a fuel card.

Mobility sends out clear and detailed invoices at regular intervals, either by post or email. The most recent invoices can be checked at any time on the customer portal.

4.2.2 Combined mobility

Cooperation arrangements with public transport partners serve to ensure an optimum transport chain for customers. Mobility car-sharing and public transport both benefit from this mutual complementarity. The range of products available with public transport partners covers virtually the whole of Switzerland.

In addition, there are cooperation agreements with local ticketing associations. A personal annual season ticket can also serve as an electronic key for the whole Mobility fleet. This subscription with Mobility permits direct connections to the car from bus, train, tram or boat.

4.2.3 Technological innovation

Mobility is keen to introduce innovations in the system for reserving care-share services. For example, Mobility has had an iApp developed for iPhone users. The "mobility car" application can be downloaded free of charge from the AppStore. The iApp combines the reservation platform (m.mobility.ch) developed for mobile terminals with the extended search function and map display of the iPhone.

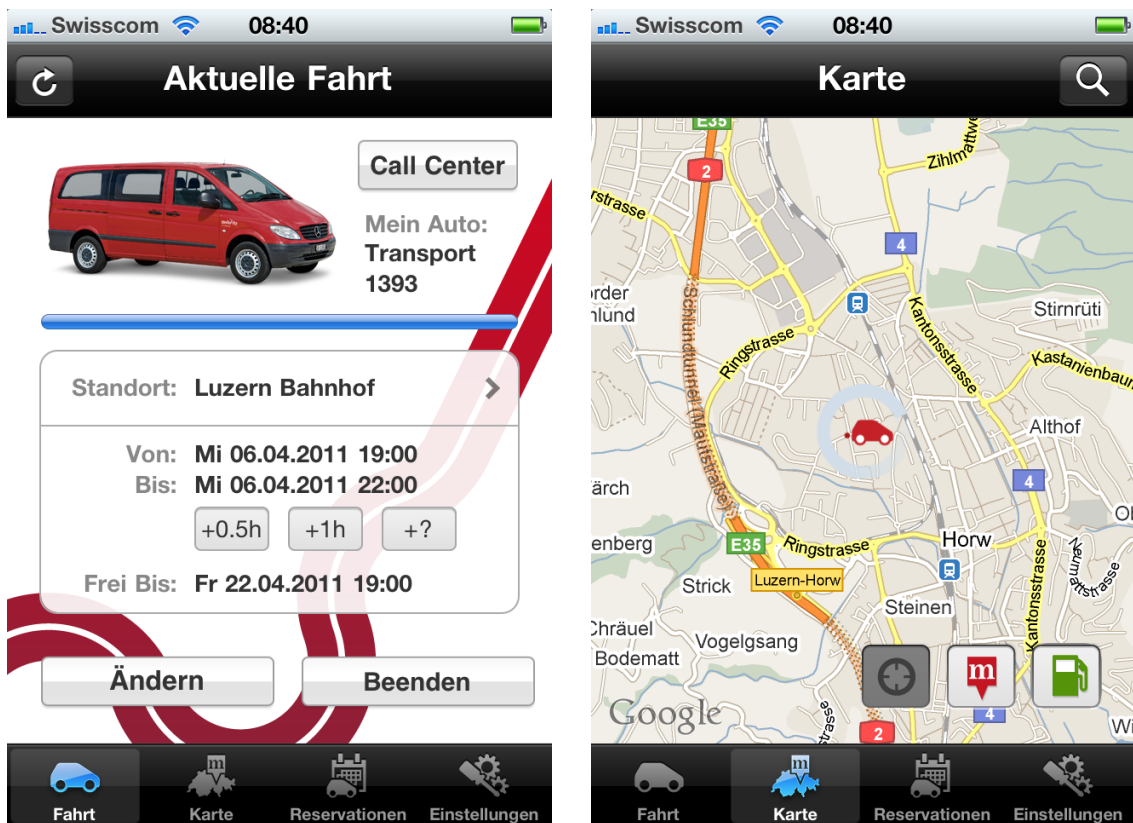


Figure 1 - Example from the iApp «mobility car»

4.3 Lessons learned

The lessons learned may be summarised briefly as follows:

- The cooperation with the public transport system is extremely important. It is a relationship that could almost be described as symbiotic.
- The complexity of the system is often underestimated.
- On the other hand, the importance of political support must never be underestimated. It can be crucial, for example, in finding suitable parking places at prominent locations.
- A good IT support is enormously important for the operation of the system.
- Despite modern communication channels like the Internet and Smartphone, 24-hour call-centres remain indispensable.

4.4 Expansion abroad?

The Swiss model of Mobility would probably not work abroad without significant changes. The local conditions in terms of infrastructure and culture are just too different. For example, providing a fuel card in the vehicle to enable the customer to fill up at the cost of the company works well in Switzerland but might not do so elsewhere.

For this reason, Mobility International, a subsidiary of Mobility, is not expanding abroad but is instead offering services in relation to the establishment and operation of car-sharing businesses (www.mobility-international.com):

- Consulting: identification and analysis of key factors, analysis of potential customer segments.
- Assistance in drawing up business plans.
- The technology (essentially software) needed to organise all the car-sharing processes.
- Support for the implementation of a fully functioning car-sharing system.

REFERENCES

1. Ueli Haefeli et al. (2006). Evaluation Car-Sharing. Text in German, with English short version. http://www.bfe.admin.ch/dokumentation/publikationen/index.html?start=0&lang=de&marker_suche=1&ps_text=Car+sharing&ps_nr=&ps_date_day=Tag&ps_date_month=Monat&ps_date_year=Jahr&ps_authorized=&ps_date2_day=Tag&ps_date2_month=Monat&ps_date2_year=2011&ps_show_typ=no&ps_show_kat=no