

## SUMMARY: EVALUATION OF CAR SHARING

---

Mobility Car Sharing Switzerland has posted further growth in recent years: in 2011 there were around 100'000 customers with a car sharing subscription. Against this background, there is increased focus on the impact car sharing is having on the environment. In response, Mobility Car Sharing Switzerland commissioned Interface, specialists in policy studies, research and consulting, to update a study first carried out in 2006. The survey looked at the effect Mobility's scheme was having on the mobility-related behaviour of its customers and at the corresponding environmental impact in terms of energy usage and carbon emissions. The survey, which was conducted online, was based on a pool of 1'171 private customers and 331 business customers.

### Mobility scheme leads to more car-free households

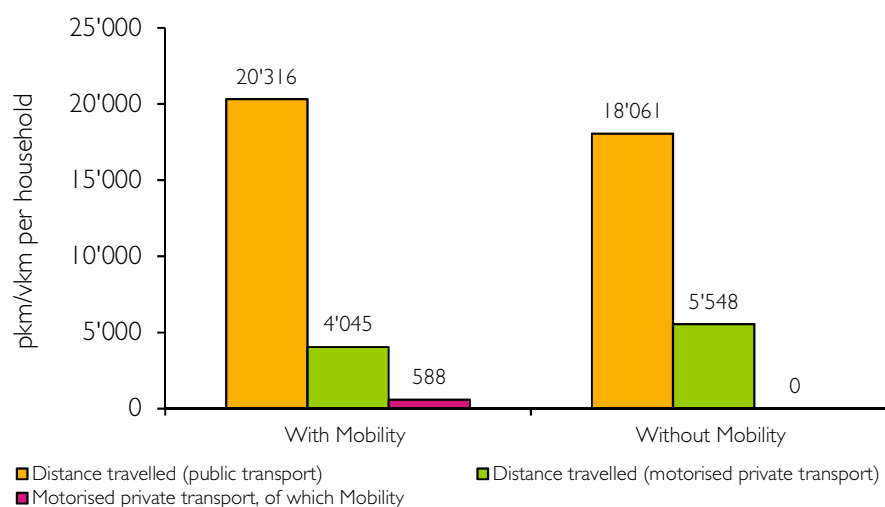
The online survey showed that 70 per cent of private customers currently own neither a car nor a powered two-wheeler. Prior to their subscribing to Mobility, the percentage was lower, at 54 per cent. The relatively high proportion of motor vehicle-free Mobility households comes across clearly when you look at their choice of transport: the Microcensus conducted in 2010 shows that car sharing users rely on public transport for almost one half of their daily mobility needs and motorised private transport for a little over 40 per cent of these needs. The rest of the Swiss population holding a driving licence travels a similar daily distance, but unlike car sharing users they rely on motorised private transport for almost three-quarters of their daily mobility needs and on public transport for no more than 18 per cent of those needs.<sup>1</sup> It follows that utilisation of the Mobility scheme correlates closely to mobility behaviour that is strongly public transport-focused.

### Effect on mobility behaviour

Of significance to a change in mobility behaviour is the decision regarding the acquisition of an additional motor vehicle, were Mobility not to exist. Of private customers surveyed, 22 per cent stated that they would have acquired an extra vehicle. These households would exhibit fundamental changes of mobility behaviour in terms of higher motorised private transport use and lower public transport use. The remaining 78 per cent stated that they would not acquire an extra vehicle. They would instead use public transport for more than one half of the current car sharing distance. This data can be extrapolated to the entire Mobility private customer cohort: as a result of the Mobility scheme, the average annual distance driven by each household in motor vehicles drops from 5'500 kilometres to 4'000 kilometres. Conversely the public transport distances rise from 18'000 kilometres to 20'300 kilometres (see diagram). These figures are largely similar to those calculated in the 2006 study. They show that the scheme operated by Mobility Car Sharing Switzerland exerts a downward effect on motorised private transport use and a stimulatory effect on public transport use.

<sup>1</sup> Source: Federal Statistical Office, detailed analysis of the Mobility and Transport Microcensus 2010.

### Private customers: Mobility with and without Mobility



Source: own survey (N = 1'148), own figures based on Microcensus 2010 data. Explanation: public transport in passenger kilometres (pkm); household fleet and mobility vehicles in vehicle kilometres (vkm).

The same causal relationship may be observed among Mobility's business customers: the car sharing scheme increases the distances travelled by public transport and reduces those undertaken in private vehicles. Responsible for this effect are 52 per cent of the business customers surveyed, who stated that they would increase their business vehicle fleets were Mobility not to exist.

#### Mobile behaviour as a basis for environmental impact

The change of behaviour induced by the Mobility scheme also has implications for the energy use and carbon emissions of its customers. Going by the energy use and carbon emissions of the individual modes of transport, it is possible to calculate the environmental impacts of the Mobility scheme based on the distances travelled with and without car sharing.<sup>2</sup> Optimisation of aspects of the method of calculation has led to further improvements in the accuracy of the environmental impact compared to the 2006 study, although this means that it is not possible to make a direct comparison between the results.

#### Energy impact

The Mobility scheme as applied to private customers is resulting in an annual energy saving of 167 terajoules. This amount of energy corresponds to 5.1 million or more litres of petroleum. For an average car in the Swiss fleet, this is equivalent to driving 60 million kilometres, or about 150 times the distance between Earth and the moon. Each average active private customer is contributing a saving of at least 3'200 megajoules to the overall savings achieved by car sharing.

The 3'597 firms and organisations that make up Mobility's business customers are contributing a saving of almost 24 terajoules through their membership of the scheme.

<sup>2</sup> In order to guarantee the comparability between the different means of transport all values refer to the year 2010.

The petroleum saved would take the average Swiss car almost 9 million kilometres, which is 22 times the distance between Earth and the moon. This corresponds to an energy saving per business customer of more than 3'000 megajoules.

#### CO<sub>2</sub> impact

The impact calculations in the evaluation show that Mobility's customers emit substantially less CO<sub>2</sub> through their use of car sharing. Altogether, the private customers reduced their CO<sub>2</sub> emissions by almost 16'000 tonnes. This is equivalent to at least 12'000 flights between Zurich and New York. The mobility behaviour of the average active private customer is currently resulting in almost 300 kilograms less CO<sub>2</sub> being emitted compared to a non-car sharing person.

The entire CO<sub>2</sub> saving for business customers comes to almost 2'000 tonnes, equivalent to the emissions of 1'500 flights between Zurich and New York. This corresponds to a saving per business customer of at least 250 kilograms.

#### Mobility behaviour – a key factor

The relatively benign environmental impact of Mobility's car sharing scheme is mainly due to two factors. Most importantly, the positive results are due to greater use of public transport and reduced use of private transport. Moreover, Mobility contributes to this with its fleet of vehicles, which make above-average energy and carbon savings. Eight per cent (private customers) and 16 per cent (business customers) of the entire energy savings achieved are due to the more environmentally benign vehicles used by Mobility. When it comes to carbon savings, the figures are 6.5 per cent (private customers) and 13 per cent (business customers).

#### Space saved: 120 football pitches

The reduction in numbers of vehicles achieved by Mobility's customers means fewer parking spaces. In the absence of any car sharing scheme, private and business customers would put in the region of 23'000 more vehicles on the road. The vehicles would require in the region of 35'000 parking spaces, equivalent to at least 120 football pitches.<sup>3</sup>

<sup>3</sup> Reference for the calculation are all Mobility clients for the year 2011.