

InclusivEV: Commercial Business Case

July 2016

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1 Introduction

Car share schemes have been slow to spread into low-income neighbourhoods. This is probably due to:

- Cost of use, and especially perceived cost of use being high relative to other options like taxis.
- A difficulty in such communities accepting the concept of car sharing, where there are strong aspirations to own a car.
- Operator reticence to move into less well understood and riskier market sectors.

Car share operators typically provide services in busy city centres, as schemes in these areas tend to be more profitable. The InclusivEV project undertook desk based research and direct interviews with residents to investigate how car share operations can be financially viable in low-income neighbourhoods; results indicate that a different business model may need to be employed. This document aims to provide readers with information on the range of commercial factors and issues that need to be addressed when looking to implement a car share operation in a low-income neighbourhood.

The commercial cases presented in this report are based on existing UK car share scheme costs provided by Carplus and assume that the initial set-up costs (e.g. buying the electric vehicle, installing the back office, installing charging points, etc.) will be covered either by a car share operator, by grant funding, or by a combination of the two and then recovered through the operational income generated from scheme use.

2 Potential Running Costs

In order for a car share operation to be financially viable, it needs to generate sufficient revenue to cover its vehicle and management costs (detailed below, per car), taking into account the desired profit margin. Typically, this requires the car share operator to secure sufficient vehicle utilisation (i.e. journeys) at a high enough hourly or daily rate to generate the necessary revenue.

Table 2.1 provides an illustration of the typical day-to-day costs of running an independent car share scheme in the UK^a.

^a Running costs have been based on industry average rates and converted to Euro using a notional exchange rate of 1.3 Euro to the British pound.

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	Annual costs per car
Depreciation ^b	€4,029
Insurance	€1,708
VED (road tax)	€0
Cleaning and checking (€28.45 per week)	€1,480
Service and maintenance	€711
Operator costs	€2,731
Electricity costs (4.4c/km) ^c	€1,870
Total cost per car per year	€12,528

Table 2.1: Typical day-to-day running costs of an independent UK car share scheme

In addition to these vehicle-specific costs, one or more members of staff should be employed to promote the scheme at a local level, support vehicle bookings and manage vehicle cleaning and maintenance; this will ensure that the scheme is a success. These person(s) should be employed at least part-time (e.g. job share), at an estimated employment cost of €21,300 per year.^d

If the staff member(s) are based in an office, this could increase the costs by approx. €4,300 per year^d, but in the interests of making the scheme as cost-effective as possible, it has been assumed that this cost has been avoided by having the staff member(s) work from home.

Marketing is also essential to the success of any car share scheme, and is likely to cost an additional €4,300 per year^d.

One of the challenges in achieving financial sustainability for a car share scheme in low-income neighbourhoods is providing a mobility service to customers who may not be able to afford typical car share rates or who may perceive them to be too high, especially compared to private car use. This may result in residents not using the car share scheme, or using it less frequently.

To overcome this barrier, and as indicated above, one part-time member of staff and a marketing budget would be required to promote the scheme. To a large extent, this cost would be fixed as it is largely independent of the number of vehicles in use. Therefore, the potential cost per vehicle will reduce for larger schemes, meaning that the rental charges to scheme members can also be reduced.

The tables below illustrate this, with the breakeven point highlighted in green based on 30% vehicle utilisation.

^b Assuming that an EV is purchased through bulk purchase of a car share scheme for €16,500 and is used for five years. The depreciation has been calculated over five years, assuming a residual value of 15% at the end.

^c Assuming a utilisation rate of 30%, and that cars drive an average of 16km per hour when booked.

^d Based on costs in the UK. This may vary in different countries.

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Cost per hour per hire	€9.00	€7.00	€6.00	€5.00	€4.00
Staff and marketing cost per year (per car)	€12,807	€12,807	€12,807	€12,807	€12,807
Total cost per year (Inc. vehicle running costs)	€25,335	€25,335	€25,335	€25,335	€25,335
Hours per year booking required to cover costs	2,815	3,619	4,222	5,067	6,334
Hours per week booking required to cover costs	54	70	81	97	122
% use needed to cover costs	32%	41%	48%	58%	73%

Table 2.2: Breakeven costs of an independent UK car share scheme, utilising two cars

Cost per hour per hire	€7.00	€6.00	€5.00	€4.00
Staff and marketing cost per year (per car)	€8,538	€8,538	€8,538	€8,538
Total cost per year (Inc. vehicle running costs)	€17,343	€17,343	€17,343	€17,343
Hours per year booking required to cover costs	2,478	2,891	3,469	4,336
Hours per week booking required to cover costs	48	56	67	83
% use needed to cover costs	28%	33%	40%	50%

Table 2.3: Breakeven costs of an independent UK car share scheme, utilising three cars

Cost per hour per hire	€7.00	€6.00	€5.00	€4.00
Staff and marketing cost per year (per car)	€5,336	€5,336	€5,336	€5,336
Total cost per year (Inc. vehicle running costs)	€14,141	€14,141	€14,141	€14,141
Hours per year booking required to cover costs	2,020	2,357	2,828	3,535
Hours per week booking required to cover costs	39	45	54	68
% use needed to cover costs	23%	27%	32%	40%

Table 2.4: Breakeven costs of an independent UK car share scheme, utilising four cars

Tables 2.2 – 2.4 illustrate that an independent car share scheme with four cars would need to charge around €5.00/hr to break even^e with a target utilisation rate of over 30% (if cars are too heavily used, members won't be able to book them when they want them). A 30% utilisation rate is ambitious, but may be achievable; it is especially important if electric vehicles are to be used that target utilisation isn't too high, as the vehicles may need to be charged between periods of use.

^e It is likely that it would be difficult to convince a commercial car share operator to establish a scheme in a deprived area due to the low potential for viability. However, an existing operator could potentially charge lower prices than a new entrant due to economies of scale (e.g. bulk discounts when purchasing vehicles, telematics, etc.).

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If charge levels aren't monitored remotely, a set amount of time is usually blocked out between bookings to allow for charging – where vehicles are booked for short periods of time, this can significantly reduce their availability for bookings.

This level of utilisation also gives an indication of the number of members required. Car share schemes usually need at least 30 members per car – possibly more in low-income areas where members may not use the car as often as in other cases.

By contrast, a scheme with four vehicles could afford to charge €5.00/hr if it could achieve 32% usage, making the vehicles more affordable to low-income households.

3 Vehicle Costs

Electric vehicles are generally more expensive to purchase than comparable fossil-fuelled vehicles. The car share business model is more likely to be viable where capital costs can be minimised. In the case of electric vehicles, the main way that this can be done is by looking to reduce the cost of vehicle purchase.

The cost of buying a new electric vehicle and installing the associated back office system, which enables members to gain easy access to the vehicle for their booking, is approximately €31,000 per vehicle. However, if this is purchased through a car share operator, which will have access to bulk purchasing and other discounts, this could be reduced to approximately €25,000, which represents a considerable saving. Buying an ex-demonstration, showroom or a used electric vehicle is likely to reduce the costs further.

Another option for reducing vehicle costs could be to lease the vehicle. Costs could also be reduced further by using second lease vehicles, i.e. used vehicles at the end of an existing lease and being leased for a second time. However, the shortened remaining life of these vehicles means that the cost saving may not be as significant as it appears.

Whichever business model is chosen it needs to allow for the cost of buying (or leasing) replacement electric vehicles when required.

4 Volunteer Support

Car share operating costs can be reduced by enlisting the support of local volunteers, who can take on a number of roles including promoting the scheme to other local residents, checking and cleaning the cars and managing bookings. Volunteers could then be rewarded with car share driving credits; this can be achieved if the payment system includes charges for members' usage, rather than being a service charge included in the rental cost.

The use of volunteers has supported the effective delivery of a number of smaller car sharing schemes in the UK. However, experience in the UK demonstrates the risk of relying on volunteers, as the scheme may fold when one or two keen volunteers leave.

Very few schemes in the UK are able to operate successfully without paid staff, and whilst volunteers can enhance a scheme, it is not recommended to try and run a scheme without paid staff.

5 Typical Car Share Charges

Members usually pay an annual membership fee to be part of a car share scheme and then pay a time-based charge (i.e. hourly or daily) to hire a vehicle plus a distance-based (mileage) charge that covers electricity and vehicle wear and tear. Members are usually billed for their use monthly in arrears. This means that all elements of the cost of a journey are explicit; this can often be a shock to new users.

	UK (Co-wheels, Birmingham) ^[1]	Spain (Avancar, Barcelona & Madrid) ^[2]	Italy (Car sharing Brescia) ^[3]	Poland
Hourly rate	€5.27	€5.00	€2.00	N/A
Day rate	€31.69	€56.00	€45.00	
Mileage rate (per mile)	Free for EVs	Free up to 80km	€0.26	N/A
Membership fees	€35.17 (one-off payment)	€45.00 (annually)	€240.00 (annually)	N/A

Table 2.5: Typical car sharing charges for back-to-base electric vehicle usage (or conventional vehicle where there are no EVs)

6 Charging for Low-Income Household Use

Anyone who needs occasional access to a car is a potential car share customer. This can include low-income households who either run one car and are struggling financially to manage the costs, or who do not have access to a car.

Research from the United States suggests that the initial up-front membership cost usually required by car share schemes is often a large barrier to low-income households, who are unlikely to prioritise this cost over other costs they need to manage. ^[4]

It should be acknowledged that although the overall costs of using a car share vehicle may be less than using a private car, the transparency of the per-journey costs compared to the perceived costs of a private car (where users typically ignore depreciation, tax, insurance and servicing) means that it appears to be expensive. Effective comparisons of vehicle costs will require community engagement and well-conceived impactful marketing.

There are a number of options available to improve the accessibility of car schemes for low-income households; these include:

- **Pre-payment:** Members pre-pay for car share usage in advance of a booking to help ensure that they have sufficient credit to cover the cost of bookings. This would help minimise the risk of residents running into debt with the car share scheme; the booking duration could be limited based on the credit available to each member.
- **A different fee structure:** Experience from the US suggests that a fee structure that lowers or removes membership fees with slightly higher hourly charges for use can accommodate low-income families who may have difficulty meeting monthly membership payments.

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- **Multi-tier fee structure:** The car share operates a means-tested two-tier charging structure whereby low-income members pay lower fees, effectively being subsidised by better-off members or business users. In the State of California in the US, car share operator CalWorks offers affordable use of their vehicles to welfare-assisted working families. Such families pay no application fee, no deposit and no monthly fee and receive a 50% discount on usage rates. This scheme initially received funding from a number of different sources, but has been subsidised by the City Car share scheme since 2006. ^[4]
- **Subsidised use:** Subsidised priority access could be provided to low-income residents with mobility needs or who need a vehicle to access medical appointments or job interviews, for example. In order to offer subsidised use, the car share operator, possibly working with one or more local social housing providers, will need to implement a system for identifying those who fall into this category. While this will create additional administration, the biggest challenge will be to ensure that the car share scheme generates sufficient additional revenue from other sources, e.g. business travel use and non-subsidised public use, to cover the cost of subsidised use.

7 Business Use

It can be cost-effective for organisations which need to use cars for business travel to make use of car share vehicles. Businesses that regularly use car share vehicles for business travel are usually corporate members of a car share scheme; larger employers can benefit from reduced rates by block-booking some or all of the vehicles in a local car share fleet for exclusive use during an agreed period, such as normal office hours. Business use provides a separate revenue stream that helps to share overheads and hence reduce costs for low-income users.

The web-based and mobile app booking systems and keyless access systems used by car sharing services allow vehicles to be used 24 hours a day, 7 days a week. This spreads the cost over a larger group of users; business users can use the vehicles during the normal working day and local residents can use the same vehicles in the evenings and at weekends. This ensures that vehicle use is maximised. ^[5]

Car share schemes have the potential to offer a range of financial, administrative and environmental benefits to a business when compared to allowing employees to use their own cars for work purposes and recovering mileage expenses (known as 'grey fleet' use).

7.1 Cost Savings to Businesses

The main benefits to a business from switching to car share vehicles are:

- A lower cost per mile than the equivalent grey fleet mileage expenses. ^f
- Significant time and cost savings arising from a reduction in business mileage.
- Reduced administration in processing mileage claims. ^[5]
- Reduction in risk associated with requirements to check vehicles are fit for purpose and drivers have a valid driving licence.

^f For short duration, high mileage journeys.

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Analysis in the UK by the Energy Saving Trust suggests that Aberdeen City Council saves approximately €56,000 annually by replacing its pool cars and grey fleet mileage with car sharing vehicles ^[6]. In the US, the city of Washington D.C. is estimated to have saved over €271,000 in the first four months using car share operator Zipcar's Fast Fleet system. ^[7]

Car sharing can also be cost-effective for smaller public, private and charity organisations.

7.2 Reduced Mileage

Evidence from the UK suggests that employers using grey fleet vehicles for business travel can often end up with exaggerated mileage claims. Where mileage claim rates are higher than the actual cost of driving, staff may have an unintended incentive to travel more to profit from this.

A car share scheme can help to reduce mileage for two reasons: ^[5]

- There is no journey distance inflation because all mileage is electronically recorded.
- There is no incentive to travel to supplement income.

Use of car share vehicles for business travel eliminates mileage inflation as the mileage recharged to businesses is accurately recorded. This can result in savings of up to 27%, but 8-12% is likely to be more typical. ^[5]

In the UK, Woking Borough Council used a combination of car share vehicles and daily car rental to completely eliminate its use of grey fleet vehicles. According to car share operator Enterprise, the scheme reduced mileage by around 30% and fewer drivers use the cars than previously claimed for grey fleet mileage. ^[5]

7.3 Other Benefits

Car share schemes can also offer a number of other benefits to for employers, including:

- Reduced demand for parking spaces, as the vehicles are shared by multiple users.
- Help meeting duty of care requirements; car share vehicles are more rigorously checked than grey fleet vehicles.
- Increased safety; car share vehicles are typically newer and have higher NCAP^g safety ratings.
- Lower vehicle particulate emissions (which cause air quality issues); EVs have zero tailpipe emissions.
- Lower carbon emissions; EVs have zero well-to-wheel emissions when powered by renewable energy.
- More commuting by sustainable transport, by removing the need for staff to bring their car to work for business use.
- Benefits for the local community, through facilitating affordable access to EVs, which would otherwise not be available.

^g A European scheme that measures the safety of new vehicles.

8 Factors Affecting Commercial Success

Experience from the UK suggests that, to date, car share schemes have worked well in housing association properties where residents are on a regular income, or where the units are mixed with private residences, by providing access to a car without the financial burden of ownership.

This report shows that the long term commercial success of car share schemes within lower-income neighbourhoods depends upon a number of factors, including:

High-density of potential users: car share schemes are likely to be most effective in high density housing developments, preferably with a mix of residential and commercial buildings to provide a complement of daytime business use and use by residents, which tends to predominantly be in the evenings and at weekends. Viability is also improved if the car share vehicles are available to residents from surrounding neighbourhoods and, where applicable, by giving occupants of the neighbourhood access to a car share scheme with vehicles located in the wider town or region. In these circumstances, ensuring the car share parking bay(s) and vehicle(s) are visible and easily accessible to occupants within the neighbourhood and the surrounding area is an important factor in ensuring the scheme's success.

Experience of providing car sharing in housing developments in the UK suggests that stand-alone car share schemes can be financially sustainable in neighbourhoods of 250 homes or more.

Parking pressures: car sharing enables lower car parking ratios, whilst lower parking ratios can be a factor in encouraging the take-up of car share schemes. Research from the UK suggests that the optimal parking ratio for a development supporting a car share scheme is 0.8 spaces per unit or less.^[9] However, where low-income levels contribute to low levels of car ownership parking constraints are less likely to be an important factor.

High utilisation: in order to be financially sustainable, car share vehicles need to be rented for a certain proportion of the available time, e.g. 30% utilisation. A mix of business and residential use therefore improves the viability of a car share scheme by bringing a wider user diversity and use patterns that can extend the utilisation of the vehicles.

The viability of a car share scheme typically also depends upon the possibility of walking and cycling and availability of local public transport, at least for some journeys, as car ownership may only be necessary in more car-dependent communities where few journeys can be made by other modes of transport.

Diversity of options for commuting: car share members need to be able to make their regular journeys (e.g. commuting) by means other than driving (e.g. public transport, walking, cycling) so that a car is not an everyday requirement.

9 References

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