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How can a Local Authority facilitate the successful implementation of a car club, both for the benefit of residents and the future prosperity of the city?

1 Introduction

In April 2012, Aberdeen City Council and Co-wheels launched the Aberdeen City Car Club. For the first time this gave people in Aberdeen access to on street, “pay as you go” car rental with eleven cars positioned around the city in nine different locations for Car Club members to use.

Car Clubs are designed as an alternative to car ownership with members paying to use a car only when they need it and able to book it for as little as thirty minutes at a time. As well as a joining fee, payment is by the hour with a small “cost per mile” fuel charge on top. Compared with the cost of owning a car, with all the associated costs, figures suggest that motorists driving between six and eight thousand miles a year could save up to £3,500 a year by joining a car club (Carplus, 2014). Furthermore, one car club car can replace over twenty private cars, as people choose to hire when they need a car rather than owning one, meaning vehicles are used more efficiently (Carplus, 2014).

Car Clubs had already worked successfully in other cities, including Edinburgh, Glasgow, Newcastle, Bristol and London (Carplus, 2014) and Aberdeen City Council were keen for the service to be offered to City Residents. This paper outlines why the Council thought a car club would work in Aberdeen and explains how it was able to create the conditions to set one up. It then examines the success of the venture before looking at future plans for the scheme.

2 Background to this paper

Like most urban centres, Aberdeen is a city facing many different transport challenges. With a population of 213,000, 95% of whom work in Aberdeen and a surrounding population of 256,000 residents, 30% of whom work in Aberdeen, there are numerous transport movements converging and going on in the city. Added to this, Aberdeen has the highest number of cars per household of Scotland’s principal cities with a ratio of 0.98 cars to every household while 69.6% of households have access to at least one car (Scotland Census, 2011). This not only leads to high car commuting rates but puts a large pressure on parking. The City’s Controlled Parking Zones go some way to managing this, with many levying a charge on motorists for parking and some even restricting the number of resident parking permits to one per household. However, even with such controls, there are still some zones where there are 2.4 residential permits for every one space available.

Traffic is also considered to be the main source of atmospheric pollution in Aberdeen (Aberdeen Air Quality Action Plan, 2011) and the city currently has three Air Quality Management Areas where levels of Particulate Matter (PM10) and Nitrogen Dioxide (NO2) are exceeding National targets and are therefore monitored stringently. The first area, covering part of the City Centre, was declared in 2001 and enlarged in 2005 with two more areas – Anderson Drive and Wellington Road – declared in December 2008. Studies have demonstrated that poor air quality is estimated, on average, to reduce the life expectancy of each person in the UK by an average of seven to eight months with estimated annual health costs of up to £20 billion (HMSO, 2007). Therefore, the Council is committed to finding solutions that reduce the harmful impact of air pollution from traffic upon the residents. There is also the threat of fines for any EU member state failing to meet air quality standards.

Map 1: Aberdeen Air Quality Management Areas (2012)

The Council currently permits employees to use their own cars for business, with these vehicles referred to as "Greyfleet". However, apart from requiring users to produce a valid MOT, where applicable, and insurance documents annually, there are very few restrictions on staff. Figures show that Aberdeen City Council's greyfleet vehicles were, on average five years old with exhaust emissions of 150g/km (EST Grey Fleet Review, 2012), which is older than the average Council Fleet vehicle and in the eighth highest road tax band of thirteen for exhaust emissions. Furthermore, with "greyfleet" mileage reimbursed at 45p per mile, this is costly for the Council too. In 2010/11 Aberdeen City Council spent £752,470 on mileage claims for greyfleet use.

In line with the Scottish National Transport Strategy (NTS, 2006), the Council encourages people to travel by the most sustainable modes and develops infrastructure in the city which caters for walkers first, followed by cyclists, then public transport with the private car last. However, it is recognised that there are many instances in which cars will still be the preferred and most viable mode of transport for people. Therefore it is necessary to facilitate car use in the least disruptive way to the city and its users.

Considering all of the above, Aberdeen City Council introduced a fleet of five pool cars in May 2007. The five Citroen C1s were based at three Council buildings and were bought as part of the Council's Travel Plan in order to encourage staff to walk, cycle, take public transport and car share for travel to and from work, yet still provide them with a vehicle to use for business purposes. They were managed by the Transport Strategy team. The Citroens were chosen due to their low fuel consumptions and class-leading (at the time) exhaust emissions of 109 g/km CO₂. The vehicles could be used by any member of staff with a valid driving license, could be booked online using the Council's e-mail system and keys were available from the relevant reception desks during office hours (8.00am to 5.00pm). In order to be as fair as possible, each staff member was limited to twenty hours of usage per week. These vehicles proved very popular and soon demand outstripped supply so two more vehicles were added in June 2010 and a further two in February 2011. The fleet, in February 2011, is listed in the table below.

Vehicle	Number	Date of joining fleet	Exhaust emissions per car (g/km CO ₂)
Citroen C1 1.0 Rhythm	5	May 2007	109
Ford Fiesta Econetic	2	June 2010	98
Hyundai i10	2	February 2011	108
Average emissions of fleet	9	All	106

However, despite improving the situation, demand for cars still outstripped supply and the management burden had increased dramatically for the Transport Strategy staff. Furthermore, staff were limited to using cars during office hours only due to car keys being based at receptions that were only open during office hours. This meant that cars spent fifteen hours of the day during the week, and the entire weekend, not moving.

Alongside this, the Transport Strategy team were also aware that a number of households did not have access to a car (31.4% of households without access to a car, and near another third does not always have access to a car when they need, Scotland's Census, 2011). Two issues therefore presented: the Council not only needed to find a way of better manage its pool vehicles but to a system to encourage more efficient car ownership across the city was also essential.

Realising that the pool cars were a publicly funded asset, and that even if they were made available for staff twenty four hours a day there would still be some downtime, a new opportunity presented itself; open up the pool cars to a wider audience when not in use by Council staff.

3 Car Clubs as an answer

In 2009, Aberdeen became one of the partners in the European Interreg IVB project “CARE North” (Carbon Responsible Transport Strategies for the North Sea), along with other European cities including Leeds, Malmo and Bremen. The project allowed Aberdeen to investigate how these other cities were looking to make their transport networks operate more efficiently. Bremen, a city of around 547,000 residents, had made huge progress with car clubs (or car sharing as it known in Europe) since it began the concept in 1990. By 2011 they had six thousand, seven hundred members and one hundred and seventy shared cars in forty-three locations. This, they believed, had removed fifteen hundred cars and saved between €25,000 and €50,000 in parking infrastructure. The availability of cars twenty four hours a day and the attraction of newer, low emission cars have both proved popular with users and the scheme has also led to fewer car miles being covered, all of which frees up more space in the city centre and has improved air quality (City of Bremen, 2011).

Aberdeen City Council believed that a similar scheme could work in the City and could bring about major benefits. A Feasibility Study, 50% match-funded by CARE North, was produced in 2010 with technical advice provided from Bremen and Malmo. The study recommended that, in principle, the implementation of a car club in Aberdeen City could be undertaken and may be attractive to commercial operators (AECOM, 2010).

The Council investigated three different models for this as shown in Table 1.

Table 1: The three options

Option	Description
Option 1	Increase the pool vehicle fleet to 11 vehicles and allow them to be used outwith work times by members of the public
Option 2	Invite a car club into Aberdeen but keep the Council's nine pool cars for staff to use.
Option 3	Invite a car club into Aberdeen, give them the Council pool cars to manage and get staff and private members to use car club vehicles.

Initial discussions with car club operators suggested that option two would prove unpopular due to the large amount of risk that would be borne by a car club in coming to Aberdeen. Option three, by contrast would vastly reduce the start-up costs and give the car club some guaranteed members in the form of Council staff.

Thus, Options 1 and 3 were taken forward. These were then costed and compared based on the current annual figure of £3,000 per car that the pool fleet was costing the Council. This cost included fuel, depreciation, insurance, cleaning and other running costs. Figures for the Car Club's management were based on the Council being charged an hourly rate and a cost per mile charge for each car club car with six cars being booked exclusively for staff at certain times at a reduced rate and the rest being available to all members all the time. Initial discussions with car clubs, while gathering information, had identified that reduced rates for guaranteed volume business was something they were happy to offer.

Initially Option 1 came out as cheaper but, once the estimated cost of Council staff managing the pool car fleet was taken into account, Option 3 emerged as the winner.

4 Creating the conditions for establishing a car club

Conditions for creating a car club in Aberdeen were established back in 2007 with their inclusion in high-profile policy documents, which require Councillor-agreement to ensure their adoption. The Aberdeen City Local Transport Strategy (2008-2012) contains the following actions outlined in Table 2.

Table 2: The Local Transport Strategy actions

Code	Action
SUS CC1	As part of the Council's Travel Plan, ACC will seek to develop a City Car Club, and encourage its expansion through corporate membership and promotion to all sectors of society
SUS CC2	ACC will support measures aimed at increasing the success of car clubs, including the provision of designated car parking spaces throughout the City and marketing campaigns.

The Aberdeen Air Quality Action Plan (2011) also contains the establishment of car clubs as a recommended measure as shown in Table 3.

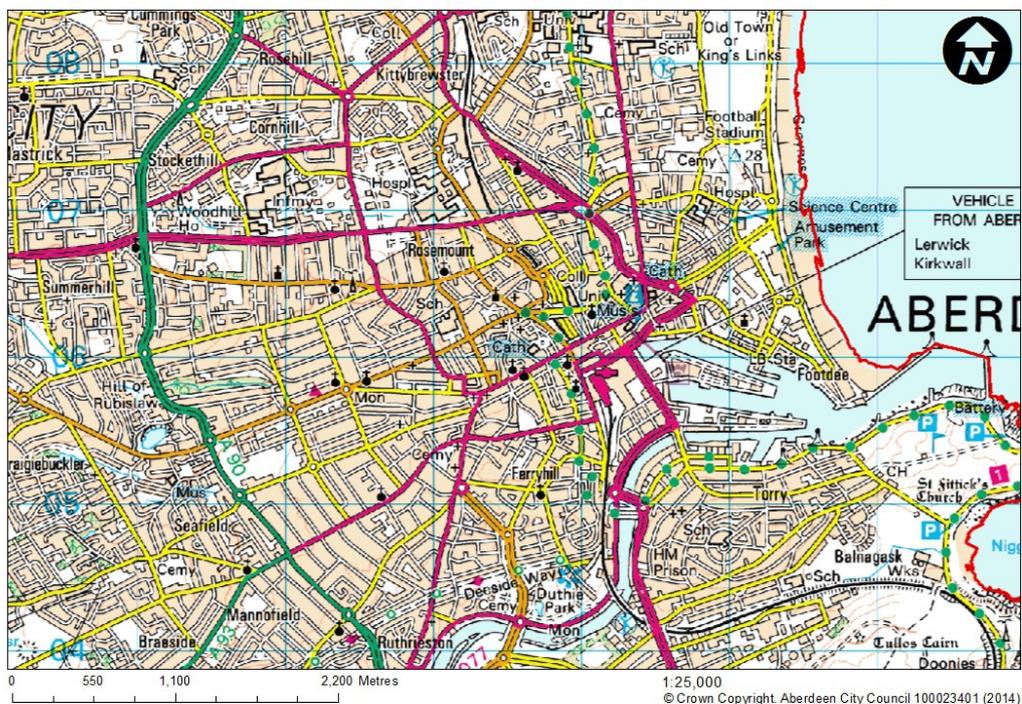
Table 3: Air Quality Action Plan actions

Measure	Sub category
1 – Modal shift and influencing travel choice	1.5/1.6 – Car clubs/ Car pool schemes

Inclusion in these documents aided the case for obtaining Elected Member agreement to progress the car club scheme, as it proved that the car club was in keeping with adopted city policy.

Initially nine locations across the city were chosen for car club bays. Four of these locations were chosen due to their proximity to Council Offices, meaning that a large number of staff were in easy walking distance of a vehicle. The other five were located in areas which had parking restrictions and were surrounded by dense residential and business premises. These are shown in Map 2 (sites with one car are in blue and sites with two are in red). In all locations, cars had their own designated bay with road markings and street signage, which was protected by a Traffic Regulation Order, meaning that only a car club vehicle could park in it. In order to ensure greater acceptance of the concept by residents and businesses every effort was made to locate bays in areas which had formerly been waiting restrictions, instead of taking away parking spaces. This was achieved in seven of the nine locations where redundant bus stops or areas of double yellow lines which were shortened or removed due to changes in circumstances or regulations. Traffic Regulation Orders plus lining and signing for Club bays was funded by NESTRANS, the North East Scotland Regional Transport Partnership.

Map 2: The Car Club locations at launch



Next, the decision was taken to increase the size of the fleet to ten vehicles and to replace the five oldest cars, now more than three years old, with brand new ones. This would make the fleet more attractive to whichever car club operator would have to manage it. In this case five Kia Picantos were purchased, due to their low emissions of under 100g/km CO2 and their class-leading warranty package. In addition a Kia Sedona MPV was purchased in order to give more options to the fleet. These were funded with the assistance of an Energy Saving Trust (EST) interest-free loan which could be paid back over six years. All ten cars were then able to be used by the car club.

Questions were asked as to whether allowing the car club to use a Council asset could be classed as state aid. However, the value of the assets was not deemed high enough to constitute state aid and so this was not an issue. Plus, by still owning many of the cars, as well as the bays and all the legislation that protected them, this meant that, should the operator and the Council part company, a new operator could easily be brought in with minimal amounts of disruption and able to use the same cars and bays.

Further questions were also asked about the cost of the scheme for staff, given that the cost of running the Council's pool cars was covered entirely by the Transport Strategy Team at no cost to users. Although not able to fully cover the cost, the Transport Strategy Team were able to secure funding to subsidise the use of Car Club cars by staff. Detailed discussions with the Council Corporate Management Team ensured that there was buy-in to the scheme, given that cars were conveniently placed and their use would cost less than paying staff to use their own cars. This allowed the Council to guarantee that two hundred members would sign up from the start, giving the car club guaranteed custom. Although staff are not prevented from using their own vehicles they are encouraged to check car club availability first.

The Council also agreed to help promote the car club by providing a marketing budget and by booking space at promotional events to help grow the presence of the car club. It was expected that this would take the form of leaflets, mailshots, branded merchandise, radio adverts and advertising boards beside spaces plus promotion at the "All Energy Expo" in Aberdeen and at various sustainable transport events including European Mobility Week. The marketing and promotional budget was funded by Nestrans and the Scottish Government's Air Quality Action Plan Programme together with CARE North match-funding.

Furthermore, through the Aberdeen Local Development Plan 2012, agreement was reached with to ensure that new business and residential developments with a shortfall of car parking spaces were encouraged to mitigate this by purchasing car club memberships for building occupants for an agreed period of time and, in some cases, even contributing to additional cars for the club. A similar scheme already existed with bus passes.

In order to ensure that the Car Club was properly managed, Transport Scotland, the Scottish Government Transport Agency and Carplus, the national accreditation body for car sharing clubs in the UK, agreed to fund the post of a part-time "Club Development" worker who would oversee the management and development of the Aberdeen Car Club.

Thus, by getting the idea of a Car Club ingrained into policy at an early stage, coming up with a coherent plan of how it would work and in being prepared to commit their own resources to the project, Aberdeen City Council were able to attract a network of partner organisations to help develop the car club. Not only did this bring considerable expertise but it helped to fund various aspects of the project too.

With this commitment in place to encourage a car club to set up in Aberdeen the next stage was to develop a tender to find an operator for the car club in Aberdeen. Following agreement from elected members at a Council committee, the tender was then made public and companies were invited to tender for the business.

5 The winning bidder

Co-wheels car club, a Durham-based organisation, emerged triumphant. They delivered the best value package for both users and the Council and were prepared to invest immediately in additional vehicles to further grow the car club. These two points were helped as, being a social enterprise company, Co-wheels stated that any money made from Aberdeen would be reinvested into the Aberdeen network, resulting in the ability to deploy new vehicles extremely quickly to meet local demand.

At launch, Co-wheels stated that to make a car financially viable, it would have to be in use 17% of the time it was available to be booked while, if a location achieved more than 20% over a period of three months or more, this would be deemed sufficient to justify a second car in the same location.

To use a car, the user first books the vehicle by phonecall, text message, mobile phone app or computer, with bookings transferred to the car and received using a telematics device with built-in immobiliser. Users then swipe their Co-wheels membership card over a sensor on the windscreen and, provided they have a valid booking, the car then unlocks and immobilises. The user then locates the keys inside the car and drives away. Even if someone breaks into the car and finds the keys they will be unable to start it as it will not immobilise without a valid booking.

Bookings can be taken up to five minutes before travel and can be made for durations from thirty minutes up to ten days in one go. Users are charged by the hour plus a small cost per mile to cover the fuel used and special daily rates are available.

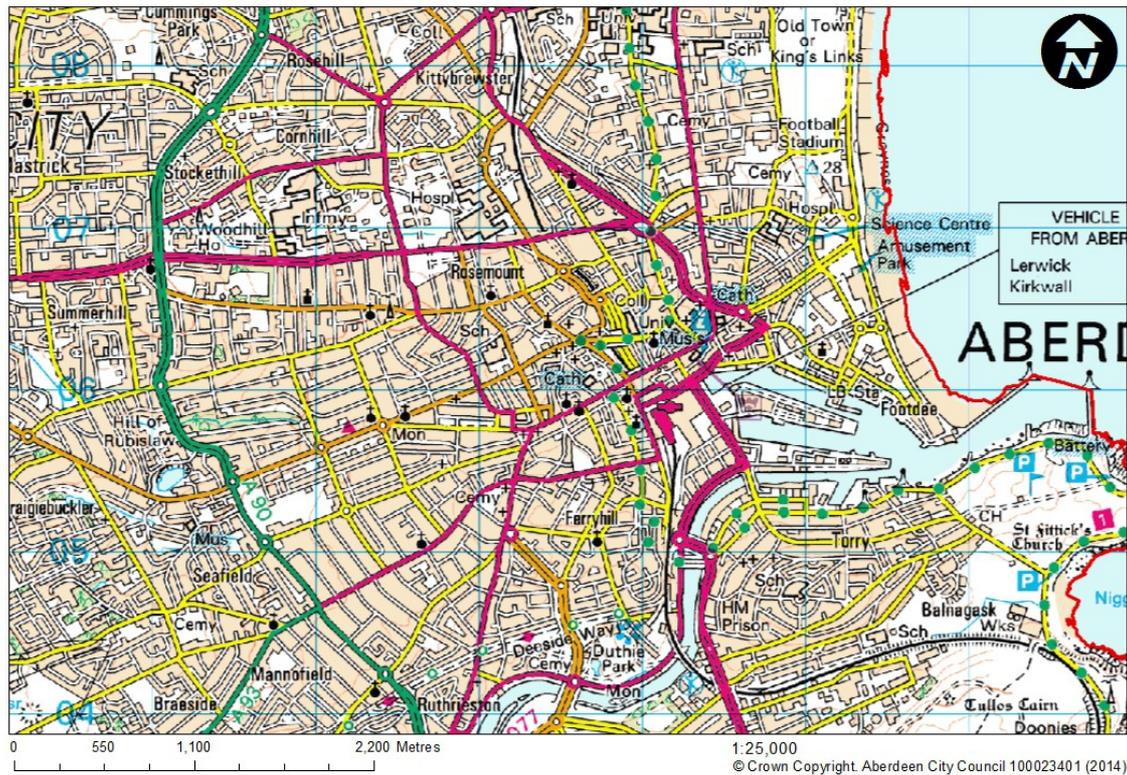
Of the eleven cars that were available at the launch of Co-wheels (ten provided by the Council, plus an additional vehicle from Co-wheels), six were booked exclusively for Council use during working hours – one of which was available to staff twenty-four hours a day – with the remaining five available for any member of Co-wheels, including Aberdeen City Council staff, to use.

6 The results to date

Since its launch in April 2012, Co-wheels has managed to achieve many successes. These are detailed below.

- First car club in the world to trial hydrogen vehicles, an initiative which allowed ordinary members to experience a very new technology
- First car club in the UK with a Wheelchair Accessible Vehicle (WAV), bringing benefits to local nursing homes and the disabled community
- First car club in Scotland to introduce Electric Car Club vehicles (EVs)
- The number of locations of cars in the city has increased from nine to twenty. These are shown in Map 2 (Sites with one car are in blue, sites with two are in red and sites with three are in green)

Map 3: The Car Club locations as of May 2014



- A membership of around six hundred and ten, around half of which are Council staff members (Co-wheels, 2014)
- With, on average, one person joining every day, Aberdeen is, for the second year in a row, the fastest growing Car Club in Scotland (Carplus, February 2014).
- To date there are now twenty-six cars on the Co-wheels fleet, seven of which are electric and twenty-two of which emit 100g/km of CO₂ or less. The average emissions of the Co-wheels fleet are 75g/km CO₂ which is much lower than original pool car fleet (106 g/km) and exactly half of the Council's average greyfleet emission figure. Eight of these vehicles are booked exclusively for staff during office hours (with two available to staff twenty-four hours a day). The full fleet is listed in Table 4

Table 4: The car club fleet as of May 2014

Vehicle	Number	Date of joining fleet	Exhaust emissions per car (g/km CO ₂)
Ford Fiesta Econetic	2	June 2010	98
Hyundai i10	2	February 2011	108
Kia Picanto 1.0	4	April 2012	99
Kia Picanto 1.25 Ecodynamics	1	April 2012	100
Kia Rio 1.1 Ecodynamics	1	April 2012	94
Kia Sedona 2.9 1	1	April 2012	179
Mitsubishi I-	1	May 2013	0

MiEV			
Peugeot Partner WAV	1	June 2013	147
Nissan Leaf	3	September 2013	0
Toyota Aygo 1.0	4	2013/14	99
Toyota Yaris Hybrid	3	2014	79
Nissan Leaf	3	2014	0
Average emissions	26	various	75

- There are also over thirty corporate organisations and businesses registered (Co-wheels, 2014).
- Most members say that they have joined as a result of seeing the cars parked on the street (Co-wheels, 2013).
- Staff members are not just taking cars from buildings but are also starting to use cars closer to their homes rather than commuting into work to pick one up (Co-wheels, 2013).
- The success of the Aberdeen car club has allowed Co-wheels to reduce their rates.
- Technological advances have allowed Aberdeen City Council's smartcard, the Accord Card, to be expanded so that it not only provides concessionary travel, cashless catering at schools, library membership and access to sports facilities, but access to car club vehicles as well. In addition, the Accord card is used as an ID Badge platform for City Council staff, enabling them to join Co-wheels, book and drive a car club vehicle the same day.
- Free private memberships offered to staff members. These also include preferential overnight rates.
- Each car deployed displaces seventeen cars from the streets of Aberdeen (five from members giving up their cars directly and twelve from members not replacing their cars when the time comes to renew). With twenty-one car club vehicles this equates to 340 fewer private cars on Aberdeen's roads, and by December 2014 potentially 544 fewer private cars (Transport Scotland, 2013).
- Members are more likely to take public transport, cycle, or combine several trips into one. A third of surveyed members reduce their average car mileage by 3,000 miles/year after joining a Club (Carplus, 2014).
- Aberdeen is held up as an example of best practice in Scotland with Dumfries and Galloway and Inverness and Dundee City Councils keen to use our model.

Electric vehicles have been a particularly promising area of growth for the car club in Aberdeen. Thanks to funding from Transport Scotland, as part of the "Plugged in Places" project in 2011 and 2012, Aberdeen City Council was able to install electric vehicle charging points, both at Council premises and in public car parks and therefore this has allowed Co-wheels to add electric vehicles to the fleet. The first car, funded by the Council using a Scottish Government Air Quality Grant, arrived in May 2013. The response from users was very positive. In the first month the car was in use 27.4% of the time it was available, compared with 22.5% for the average Aberdeen Co-wheels vehicle.

This gave Co-wheels the confidence to introduce more and, in September 2013, three more electric vehicles arrived with another three joining the fleet in April 2014. To facilitate the April cars, Aberdeen City Council was able to obtain funding from the Office for Low Emission Vehicles (OLEV) to install more public electric vehicle charging points, something which will also benefit members of the public.

Given the differences between Electric Vehicles and fossil fuelled ones, comprehensive instructions are available, both in written and video form, and all drivers are offered a free training session prior to using a vehicle.

This comprehensive rollout has led to 83% of Aberdeen members believing more electric vehicles should be made available (Ramsay, 2014)

7 Future Plans

Given the success of the Aberdeen car club to date, Co-wheels are looking to further develop the car club in the future with the following projects.

- Funding from Car Plus has already been approved to purchase the first electric car club van in Scotland
- Applications are currently in to create a further thirteen bays in ten locations across the city. The majority of these are outwith the city centre in areas where membership “hot spots” have been identified.
- A new “Visitor Membership” trial, accessible via hotels, the tourist board shop, ferry operators and short term lease apartments
- Further promotion to the local Aberdeen business community through networking, leafleting and events attendance
- Further promotion with targeted leaflets dispensed to different user groups, including: students, young professionals, families, tourists and those interested in electric vehicles

8 Conclusion

What this paper demonstrates is that the method chosen by Aberdeen City Council for the implementation of the car club has led to a very successful project being established in the city. By identifying a need and an opportunity early on, ingraining the concept into policy and by seeking information and expertise from other cities in Europe, who already had successful car clubs, the Council were not only able to convince partners into the scheme but were able to attract funding and, most importantly, have an operator bid to run the scheme in Aberdeen.

The fact that the car club has attracted over six hundred members in two years and has grown from eleven cars in nine locations to twenty-six cars in twenty locations shows just how much appetite there is from users and has helped to give Co-wheels tremendous confidence in the Aberdeen car club, leading to opportunities like the hydrogen trial and the introduction of electric vehicles. The latter has not only led to air quality improvements and reduced the emissions of the Co-wheels fleet, but has helped to give people first-hand experience of driving these vehicles and yielded a very positive response.

Furthermore, the evidence that the car club is actually reducing the number of cars in Aberdeen and is encouraging people to drive less shows that the concept is working as the Council had hoped.

The fact that the operation continues to grow so fast, continues to help reduce CO2 with each new car that it adds and continues to reduce the number of cars in the city centre yet improve social inclusion and accessibility all help to make Aberdeen a better place and, as a result, encourages the future prosperity of the City.

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10 Acknowledgements

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