O Executive Summary

During the project, 3 campaigns have been implemented towards the target group of young people, mainly students, with an expected low demand for car use.

The first campaign was a broad campaign using traditional media as the electronic monitors in all buses and the big city posters in the bus shelters. The purpose of the campaign was to draw attention to the possibilities in car sharing scheme.

The second campaign was a minor newspaper based campaign informing of the new possibilities after relocating the car sharing locations.

For the third campaign the sub-segment of computer geeks was selected, to test a new form of campaign, where the content was a competition requiring skills and an effort to participate. The competition was so hard that only a small number of the participants were supposed to find the solution – giving them a significant possibility to win one of the prizes. The purpose was that a great number of participants should spend a lot of time, trying to solve the puzzle, and thus be very much aware of car sharing. And that the puzzle should be so difficult that the target group would start sending it to each other – creating a viral marketing effect.

The campaign used a wide range of new media as the internet, a viral mail campaign and QR Codes.

To increase the possibility for success for the car sharing scheme, cars were relocated and more cars were added to the scheme. The numbers of car sharing location almost doubled and the car sharing locations were reallocated to the university and to the arrears were the young target group lived – mapped based on GIS analyses. Further a new, modern and intuitive internet based booking system was implemented.

The most innovative part of the measure was the use of new media in the last campaign.

The use of car sharing has been decreasing during the project period. Any positive effect of the campaigns and changes in localisation of cars has not able to counteract this trend. In spite of running three campaigns and a significant increase of respectively 43% and 29 % in numbers of locations and numbers of cars, the evaluation showed a significant decrease of 7% per year in the number of car rentals, 9% per year in kilometres performed in total and 15% per year in kilometres performed by cars. At the same time the numbers of active users went down with 7% per year.

The overall conclusion based on analyse of potential drivers and barriers, is, that the prerequisite for running a healthy car sharing system does not exist in the Aalborg framework at the moment. The main lacking driver is the absence of a financial motivation for using car sharing.

The initial objective for this measures was to encourage companies in the ARCHIMEDES corridor to use an already existing car sharing scheme in the city instead of own company cars. This would also give opportunities for their employees to use the scheme at a special rate. An initial in-depth going analyse showed that there was no real drivers for the companies to use car sharing in the local framework. Still leaflets were produced and a campaign was conducted targeting a selection of most probable companies. As the double approach to 25 companies (paper mails and telephone follow up) was not successful, the measure was redefined to campaigns aiming at young people, mainly students, as a more likely target group for car sharing.

A   Introduction

A1.1 Objectives

The measure objectives are:

(A) High level / longer term:

- To minimise the environmental impacts from traffic in Aalborg.

(B) Strategic level:

- To obtain more efficient use of the vehicles in order to minimise the environmental impacts of car traffic

(C) Measure level:

(1) The objective of this measure – which is covering both car-sharing and car-pooling – is to get less traffic.

(2) A 10% increase in car sharing subscribers.

A2   Description

After deciding on young, mainly students, as the primary target group for the car sharing[1], a GIS analysis on existing data from the municipality was carried out to determine the best locations for the car sharing places considering the settlement of the target group.

Cars were relocated and more cars were located in the city, for example in an area in the western part of the city where the analysis showed a high density of students and young people. A car sharing place was established at the university to fit the same target group.

The total number of cars went up from 7 to 9, and the localisations were reconsidered, so cars in locations which were not very much used was moved to better location to facilitate the new target group.

As the first step in the promotion campaign, an updated homepage for Hertz Car sharing was launched, and a major campaign with large City Posters on the bus stops and promotion on monitors in the city buses was conducted. The purpose was to create visibility for the existing car sharing scheme in the city.

When the new car sharing locations were fully implemented, advertisements in the local newspaper were launched in order to inform the citizens about the new accessibility to cars.

The online booking system with a supplementary smart phone booking facility was implemented in December 2011 and a new promotion campaign was launched in order to encourage more citizens to join the scheme.

For the new campaign the sub-segment of computer geeks was selected, to test a new form of campaign, where the contents were a competition requiring skills and an effort to participate. The competition was so hard that only a small number of the participants were supposed to find the solution – giving them a significant possibility to win one of the prizes. The purpose was that a great number of participants should spend a lot of time, trying to solve the puzzle, and thus be very much aware of car sharing. And that the puzzle should be so difficult that the target group would start sending it to each other – creating a viral marketing effect.

The key element in the competition was a homepage showing The Wall and the challenge was to 'break through the Wall'.

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[1] Please see section D1. Deviations from the original plan

The geeks who broke right through The Wall participated in a draw to win one of 10 one-years 'A' memberships with 250 km free driving – all in all at the value of 650€each. The first prize was further supplemented with an iphone.

A3   Person in charge for evaluation of this measure

Name of person   Gustav Friis

Name of organisation   City of Aalborg

Direct telephone   +45 99312335

e-mail   guf-teknik@aalborg.dk

B   Measure implementation

B1   Innovative aspects

The first drafted innovative aspect which concerned the new approach towards companies has been replaced by more technical aspects which ensure that information about the car sharing scheme also reach the target group.

Instead of new markets for the car sharing scheme as the innovative part of the measure, the use of new communication channels, as smart phones and social medias as Facebook, is the innovative part of the measure. As for CIVITAS ARCHIMEDES measure 9, providing relevant and reliable information to the citizens where they are and when they want, this measure is demonstrating the same innovative approach.

Thus, the Innovative Aspects are:

- **Use of new technology/ITS** – New internet booking facilities, new smartphone booking. Using new social media in the campaign.

- **Targeting specific user groups** – Targeting young people using new communication platforms and media as smart phones, the internet, facebook, Email – viral campaign and use of QR codes.

B2   Planning of Research and Technology Development tasks

Not relevant

B3   Situation before CIVITAS

The car sharing scheme in Aalborg was established as part of the CIVITAS 1- Vivaldi project, so the car sharing system was already running when the ARCHIMEDES project included promotion campaign for this as a measure.

The scheme is based on smart card. There are two different forms of membership. An 'A' membership for frequent users and a 'C' membership for infrequent users. The "A" membership is characterized by a monthly membership fee of 300 DKK and payment per hour and per kilometres driven. The "C" membership is without the membership fee, but with higher costs for kilometres and hours.

If a company is member of the scheme, the employees can get an 'A' membership without paying the membership fee, but still benefit from the low costs for using a car.

Figure 1. Demonstration of the smart card for the Car Sharing Scheme

The car sharing scheme has been running since the beginning of 2004. In May 2008 there were car sharing cars at 4 locations in Aalborg and a total of 7 cars. In June 2008 the car sharing scheme had 351 members, of which 111 were members through a company agreement.

The car sharing scheme was run as a minor sideline activity by a large Copenhagen based car hiring company. The car sharing was not considered, or treated, as a core activity for the company.

The trend was a slightly rising numbers of (free) memberships, but a falling use of the cars.

B4   Actual implementation of the measure

Stage 1: Planning new stations and reallocation of cars based on target groups settlements. Bringing the system up-to-date, and ready for the campaigns *(Dec. 2010 – June 2011)*[2]

After deciding on young people, mainly students, as the primary target group for the car sharing, a GIS analysis on existing data from the municipality was carried out to determine the best locations for the car sharing locations considering the settlement of the target group. These analyses resulted in various maps indicating the most feasible locations for car sharing cars.
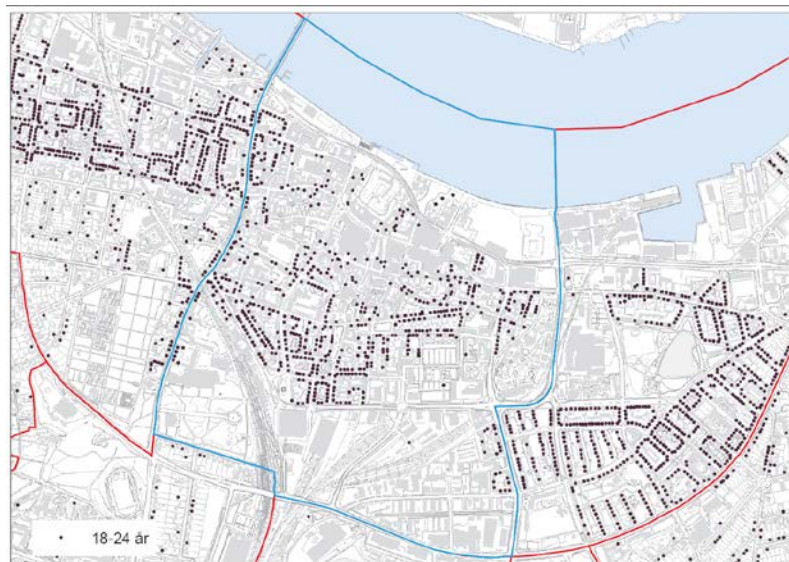

Figure 2. This map shows the distribution of young people aged 18-24 in the city centre of Aalborg.

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[2] According to the template, this document – except section D1 - must be limited to what was actually implemented. To see a comprehensive description of the process before December 2010 see section D1 and especially deliverable T.53.1
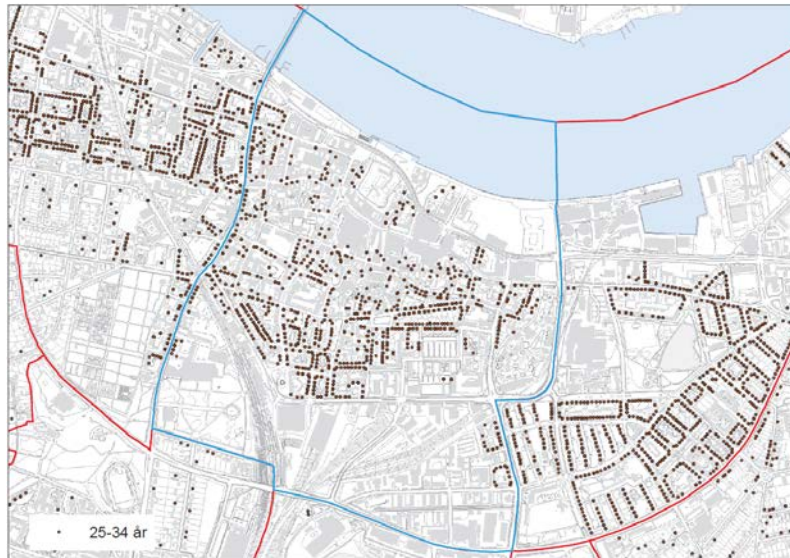
Figure 3. This map shows the distribution of young people aged 25-34 in the city centre of Aalborg.

Cars were relocated in the city so cars in locations which was not very much used, was moved to better location to facilitate the new target group. More cars and new locations were added, for example one in an area in the western part of the city where the analysis showed a high density of students and young people. And a car sharing location was established at the university to fit the target group. The new locations of cars were decided based on the GIS analysis mentioned above.

Figure 4. New location for Car Sharing cars in the western part of the city centre

In total the number of car sharing stations went up from 4 to 7 and the numbers of cars went up from 7 to 9.
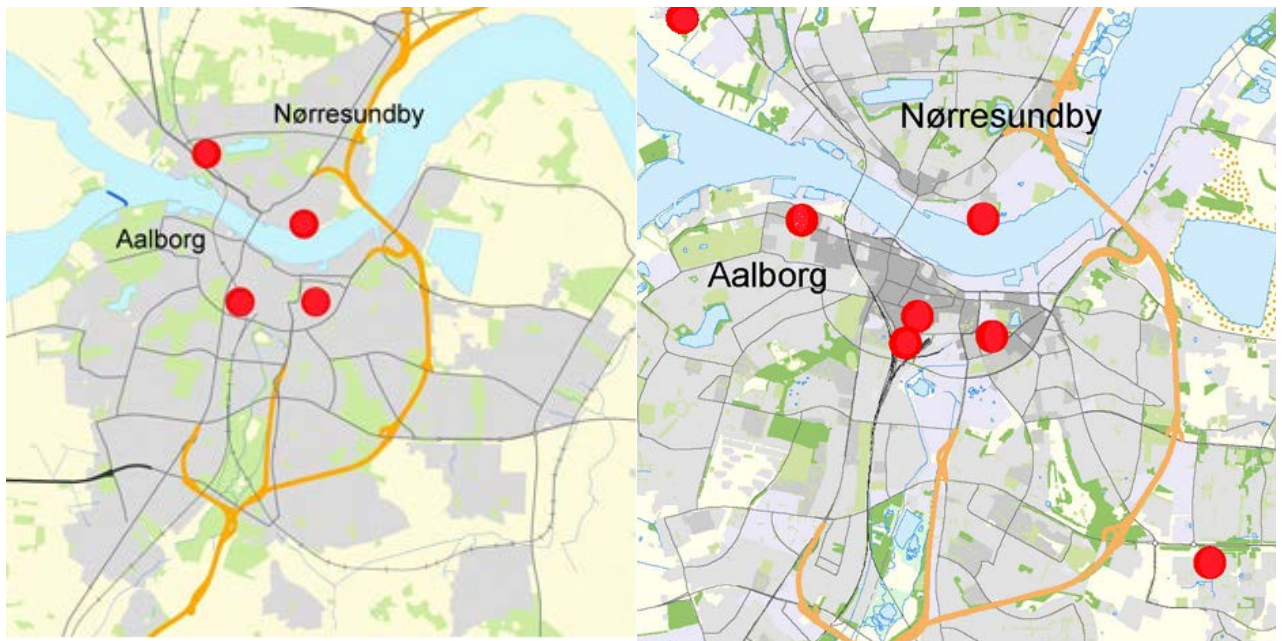
Figure 5. Locations before and after the CIVITAS ARCHIMEDES project extended the number of locations from 4 to 7 and relocated the cars to make them easy accessible for the target groups.

Stage 2: Campaign for the new car sharing locations - targeting the residents near the new stations. *(September 2011)*

When the new car sharing locations were fully implemented, advertisements in the local newspaper were launched in order to inform the citizens about the new accessibility to cars. See Figure 6

Figure 6. Marketing material presented in newspaper, promoting new carsharing locations

Stage 3: Launch of a major, city wide campaign mainly targeting the young target group.
(March- June 2011)

As the first step in the promotion campaign a major campaign with large City Posters on the bus stops and promotion on monitors in the city buses was conducted. The purpose was to create visibility for the existing car sharing scheme in the city, and to market car sharing as easy, smart and modern.

Figure 7. Marketing material presented in bus shelters

Figure 8. Marketing material presented on bus monitors, installed in every city bus in Aalborg (monitors implemented in the buses as part of ARCHIMEDES measure 69)

The use of bus stops and bus monitors was chosen because the target group, students and young people without a car, often live in the city and use the buses.

The large bus-stop posters - 175cm x 120 cm -, were shown at 50 selected bus stops for 3 weeks. The advertisement in the buses was shown in 10 seconds timeslots in all 100 city buses each 5th minute for three weeks. In all, more than 375,000 exposures.

Stage 4: Launching new internet-booking facilities. *(December 2011)*

The online booking system was implemented in December 2011 and a new promotion campaign was launched in order to encourage more citizens to join the scheme.
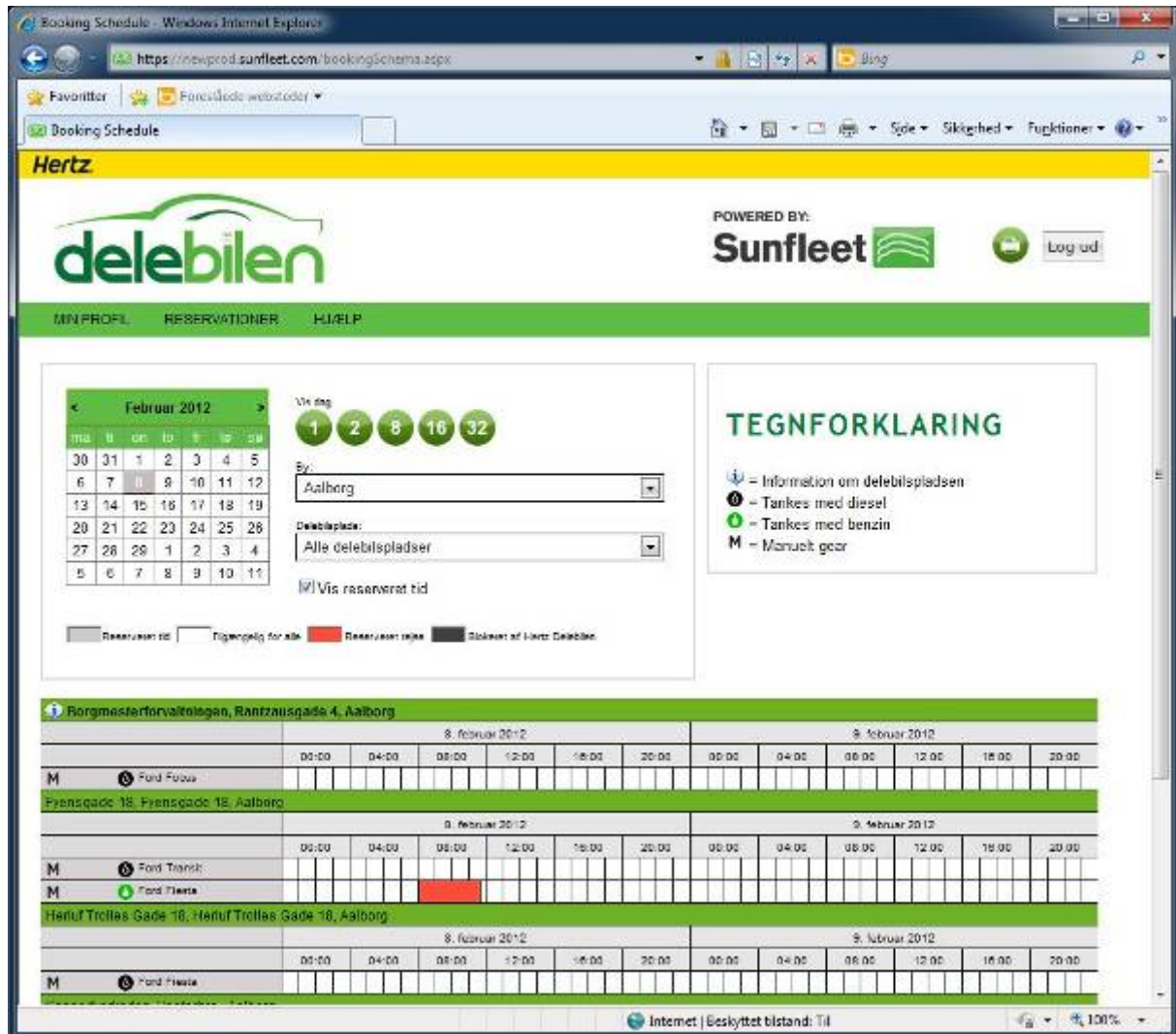

Figure 9. Screen dump of new internet based booking system.

Stage 4: Launching of promotion campaign using new social media and aiming at the sub-segment of young computer 'geeks'. *(Dec. 2011- Feb. 2012)*

For the new campaign, the sub-segment of computer geeks was selected, to test a new form of campaign where the content was a competition requiring skills and an effort to participate. The competition was so hard that only a small number of the participants were supposed to find the solution – giving them a significant possibility to win one of the prizes. The purpose was that a great number of participants should spend a lot of time, trying to solve the puzzle, and thus be very much aware of car sharing. And that the puzzle should be so difficult that the target group would start sending it to each other – creating a viral marketing effect.

The key element in the competition was a homepage showing The Wall and the challenge was to 'break through the Wall'. To do so, among other things, you had to find and break a cookie, set-up an rss feed, find another site where you could leave your contact details etc.

Figure 10. Graphic identity of the last promotion campaign. The campaign was supporting an online completion. More information in Deliverable T53.1 which is available on the civitas.eu website.

The geeks who broke right through The Wall participated in a draw to win one of 10 one-years 'A' memberships with 250 km free driving – all in all at the value of 650€each. The first prize was further supplemented with an iphone.

To make everything a little more fun and difficult, in some of the media the advertisement only was an QR Code, and the text 'Break through the Wall – only for IT geeks'. In other advertisements, the link to the competition page was shown. And in some, a click on the internet advertisement only led to a guidance text and the QR code.

The following media were part of the campaign.

•   Facebook – the social website

•   Version2.dk – The Online magazine for IT and communication engineers.

•   The live-screens in all city buses.

•   Email – viral campaign

•   Big posters at the University

•   Flyers, distributed in the buses

Facebook: The advertisement was shown only to the selected target group of young (18-35 years), in the Aalborg area (radius 45 km), with interest for IT and technology. The ad was shown 3.307.045 times; giving 885 clicks leading a person to The Wall competition site.
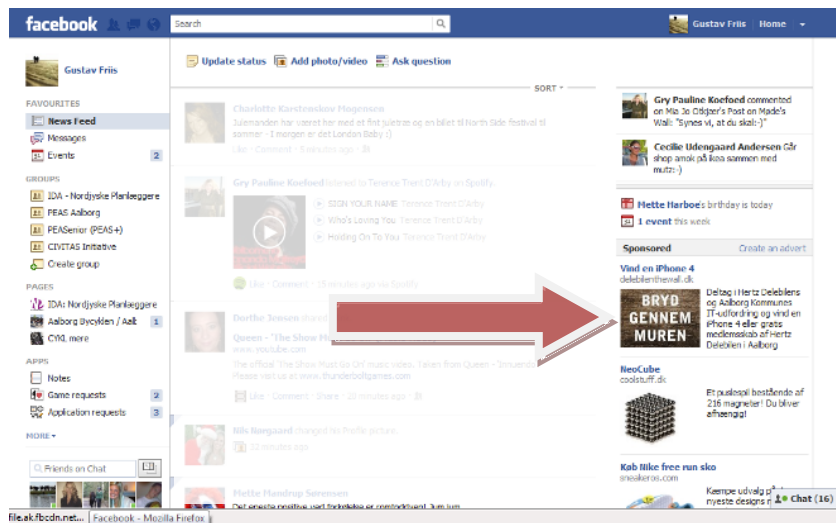
Figure 11 Facebook advertisement

Version2.dk.: The Online magazine for IT and communication engineers. All readers of the Version2.dk magazine are by definition in the geek segment of the target group. Furthermore, the presentation of the ad was limited to the North Denmark geographic area. Having the real geeks here, we decided to show a 'QR code only' ad here. Clicking the ad led to a hint page saying 'You are on the wrong track'. Using the QR code in the phones as intended, led the persons to a page giving the proper link to The Wall competition site.

The ad was shown 25.096 times, giving 89 clicks leading a person to the hint page. It is not possible to see how many persons scanned the QR code and in this way went to the competition page.

Figure 12 ad on Version2 - for IT and communication engineers

The live-screens in all city buses. Once again the live screens in all city buses (ARCHIMEDES measure 69) were used as media in an ARCHIMEDES campaign. The advertisement (Figure 13) in

the buses was shown in 10 seconds timeslots in all 100 city buses each 5th minute for six weeks: all in all more than 750.000 exposures. The screen showed the link to the competition page together with presentation of the prizes as an appetiser

Figure 13 ad on live screens in all citybuses

Email – viral campaign. To try to start a viral campaign, emails with invitations to join the competition in the campaigns graphical design, were emailed from the project to all connections, using all personal and professional networks – including an urge to send the mail on via the receivers own networks. It is obvious, that is has not been possible to trace to how far the snowball effect has reached.

Large posters at the University 100 posters in 500x700 mm were printed, and put up on the notice boards at the relevant parts of the university.

Figure 14 One of the 100 posters from the bulletin boards at the university

Flyers, distributed in the buses. As the last attempt to reach the target group, 500 flyers were printed and as many as possible were distributed directly to the students in the mornings buses going to the university area. The flyers were small and handy (80x100mm) and printed on two sides. Again the QR code was used to sharpen the appetite.

Figure 15 Front and back side of flyer

More than one thousand people reached The Wall on the competition site. We don't know how many of these people tried seriously to break the wall, but only 20 succeeded.

A draw was made between those who succeeded and ten winners were given prizes.

B5   Inter-relationships with other measures

The measure is related to other measures as follows:

Measure no. 30: Commuter Travel Plans. As part of the commuter travel plans, companies in the ARCHIMEDES corridor – including the university - were contacted. In this process, the car sharing scheme was suggested as one of the solutions for the companies in order to minimise the traffic.

Measure no. 52: City Bike Scheme. To ensure intermodality, locations of car sharing cars and city bikes are coordinated.

New locations of the car sharing cars at Frederikstorv, Herluf Trolles Gade and Aalborg University all have city bike stations nearby.

Measure no. 69 On-trip Bus Traveller Information. The screens in the city buses implemented as part of the measure 69, have been used as a campaign media in this measure.

C Planning of Impact Evaluation

C1 Measurement methodology

C1.1 Impacts and indicators

C1.1.0 Scope of the impact

Providing alternatives to private car use among the young target group could imply, that the demand for a private car would be minimised. If you, as a young person, have a low demand for car use, the procurement of a private car, even a very used car, and not using it very much will result in a very high cost per used kilometre. The car sharing scheme in Aalborg aims at this target group. A car sharing scheme can fulfil the occasionally need for a car, for example while visiting family or going to the mall, for a lower kilometre cost, provided a low annual number of kilometres. The daily transport needs to be covered by bicycle or bus, and the demand for a car has to be rarely.

By promoting the scheme and thereby getting more people to use the scheme, hopefully, private car ownership can be postponed. First, experiences show that easy access to a car, i.e. owning a car, leads to more kilometres travelled by car. Cars are hence, used for more trips if you have immediate access than if you are member of a car sharing scheme, where you have to book in advance, to walk to the car sharing location, to return the car before a fixed time etc. Secondly, experiences show that when you have your own car, you only take into account the variable costs, when considering the cost for using your car on a specific trip. In the car sharing scheme the capital costs is taken into account in the cost for each kilometre. This higher cost per kilometre has a result that other means of transportation – as bike and public transport - is chosen more often. As a consequence of these two points, the number of driven kilometres for members of the target group will be smaller if they use the car sharing scheme, than if they have their own car.

Also, by having the car sharing scheme in the city, there will be fewer cars in the city and thereby less pollution.

C1.1.1 Selection of indicators

NO.	EVALUATION CATEGORY	EVALUATION SUB-CATEGORY	IMPACT	INDICATOR	DESCRIPTION	DATA /UNITS
	SOCIETY					
13		**Acceptance**	Awareness	Awareness level	Awareness of the policies/measures	Index (%), qualitative, collected, survey
	TRANSPORT					

NO.	EVALUATION CATEGORY	EVALUATION SUB-CATEGORY	IMPACT	INDICATOR	DESCRIPTION	DATA /UNITS
			Number of shared cars	Number of shared cars	The number of cars in the scheme	Number
			Number of car rentals	Number of car rentals	Number of car rentals per week	Number
			Vehicle performance	Number of kilometres performed	The number of kilometres performed in the scheme pr. year	Number
			Active members	Number of active members	The number of members with more than 2 rentals within the last one year	Number

C1.1.2   Methods for evaluation of indicators

No.	INDICATOR	TARGET VALUE	Source of data and methods	Frequency of Data Collection
13	Awareness	25 % increase in awareness of the car sharing scheme among students at Aalborg University	Quantitative survey among students as part of the follow up on the commuter travel plan (measure 30). Through a questionnaire the awareness of the car sharing scheme is determined. This is compared to baseline data produced through the STEER MIDAS Project in December 2006.	One. Data have been collected as part of the follow up survey at Aalborg University for measure 30: Commuter Travel Plans.
	Number of car sharing cars	50 % increase	Log information from the car sharing scheme. The car sharing company provides information on the number of car sharing cars in the scheme.	Continuously.
	Number of car rentals	50 % increase	Log information from the car sharing scheme. The car sharing company provides information on the number of car rentals in the scheme.	Continuously
	Vehicle performance	20 % increase	Log information from the car sharing scheme. The car sharing company provides information on the number of performed kilometres in the scheme.	Continuously
	Active members	10% increase in car sharing subscribers	Active members that use the scheme on a regular basis. Log information from the car sharing scheme. The car sharing company provides information on the number of car sharing cars in the scheme.	Continuously

C1.1.3   Planning of before and after data collection

EVALUATION TASK	INDICATORS INVOLVED	COMPLETED BY (DATE)	RESPONSIBLE ORGANISATION AND PERSON
Quantitative survey among students as part of the follow up on the commuter travel plan (measure 30). Through a questionnaire the awareness of the car sharing scheme have been determined. This is be compared to baseline data produced through the STEER MIDAS Project in December 2006.	13	Month 42	City of Aalborg, Gustav Friis
Data collection from log information at log information at the car sharing scheme to reveal the development in number of subscribers, performed kilometres etc.		Continuously until Month 42	City of Aalborg, Gustav Friis
D12.2 Baseline and first results from data collection	All indicators	Month 38	
D12.3 Draft results template available	All indicators	Month 44	
D12.4 Final version of results template available	All indicators	Month 50	

C1.2 Establishing a baseline

Hertz Car Sharing was implemented in Aalborg in 2004. The intended target group was very wide, being the citizens in Aalborg. As for many car sharing schemes the actual user group showed up to be mainly young students, - and the municipality for the purpose of supporting the scheme.

After the introduction of the scheme it went into the operation phase, and even though the number of members of the scheme was increasing from 225 in 2005 to 295 in 2007, the performed kilometres by the cars in the scheme was higher in 2006 than in 2007. This indicates that, due to the existence of the free 'C' membership, inactive members of the scheme do not quit the scheme, and that the total number of members (active and inactive) is hence not a very good indicator of the use of the scheme. To complicate the matter further, as a part of a change to a new booking system the Hertz car sharing company 'cleaned' the system by deleting all inactive members in the middle of the project period, bringing the numbers of members down by approximately 70. So even if the number of members was accepted as an indicator, no comparable 'after' value could be presented.

The numbers of active users, that is users using a car more than twice a year, is a better indicator, but this number does not exist for the period before the ARCHIMEDES project – but can be computed when December 2008 – September 2009 is used for baseline.

Analyses on the use of the cars, including active members and performed kilometres are performed for the baseline period December 2008 – September 2009 and can be seen in Table 1.

Since the approach of the measure has changed the proposed target values is no longer relevant.[3]

Location	No. of cars (Dec.2008-Sept 2009)	No. of rentals (Dec.2008-Sept 2009)	Active users* (Dec.2008-Sept 2009)	Kilometres (Dec.2008-Sept 2009)	Kilometres pr. car (Dec.2008-Sept 2009)
Stigsborg Brygge	2	291	18	23,349	11,675
Lindholm Station	1	138	8	10,958	10,958
Kennedy-Arkaden	2	347	40	32,048	16,024
Fyensgade	2	288	39	23,472	11,736
Total	**7**	**1064**	**105**[#]	**89,827**	**12,832**

Table 1 . Baseline - Situation in the period from December 2008 – September 2009

* Active users are users with 2 or more car rentals in the period.
[#] Not number of unique users, as some users are 'Active users' on more locations.

In December 2006, as part of the STEER MIDAS project, an awareness survey of soft measures and information was carried out amongst students at Aalborg University. This survey showed low awareness of the scheme. These results are used as baseline for later awareness analyses:

	Do not know	Knows but doesn't use	Knows and use rarely	Knows and use often
Pct. Students knowing the Car sharing scheme	82,9	16,3	0,2	0,6

Tabel 2 Baseline - Awareness of the Car sharing scheme. Situation in December 2006.

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[3] See Section D1.

C1.3 Method for Business as usual scenario (For Evaluation Focus measures and where possible also for non focus measures)

Should a Business as usual scenario have to be constructed, it would have required an extrapolation of the development of the trend for the indicators used for evaluation.

The uncertainties and required assumptions connected to such a scenario, is of such a size that it is not relevant to create a BaU for this measure. Where BaU arguments are required, the baseline data can be used as well.

C1.4 Cost Benefit Analysis

Not relevant for this measure.

C2 Measure results

C2.1 Transport

The numbers of new members in the scheme were made up for the period where the new locations were established, cars redistributed and the campaigns conducted, and compared to the previous years. The result was that only very few (10) new members were registered, and that this number were on the same level as the usual turnover in the member group. The actual number is so low, that it would not be valid or reliable to calculate differences or percentages etc.

Table 3 repeats the enumeration of baseline data from Table 1 in section C1.2 covering the transport indicators: number of cars in the scheme, number of car rentals, number of active users, performed kilometres, and performed kilometres per car in the scheme. The enumeration is made per location.

Location	No. of cars (Dec. 2008-Sept. 2009)	No. of rentals (Dec.2008-Sept. 2009)	Active users* (Dec.2008-Sept. 2009)	Kilometres (Dec.2008-Sept. 2009)	Kilometres pr. car. (Dec.2008-Sept. 2009)
Stigsborg Brygge	2	291	18	23,349	11,675
Lindholm Station	1	138	8	10,958	10,958
Kennedy-Arkaden	2	347	40	32,048	16,024
Fyensgade	2	288	39	23,472	11,736
Total	**7**	**1064**	**105**[#]	**89,827**	**12,832**

Table 3. Situation in the period from December 2008 to September 2009.
* Active users are users with 2 or more car rentals pr. year.
[#] Not number of unique users, as some users are 'Active users' on more locations.

In December 2010 Hertz changed the pricing strategy for the scheme, making it more expensive in general to use the car sharing scheme. The complete after-evaluation period is after the change in price level.

In May and June 2011, the major car sharing campaign was launched (more details in section B4). The intention was to get more people to join the scheme, and as a derived impact, also to have a positive effect on the number of car rentals and performed kilometres.

To better reach the redefined target group, cars were moved to more feasible locations. The cars moved as indicated in Tabel 4:

From	*Date*	*Number of cars*	*To*
Kennedy Arkaden	1st July 2011	1	Frederikstorv
Frederikstorv	10th January 2012	1	Mayor's Department
Lindholm Station	1st August 2011	1	Herluf Trolles Gade
-	1st October 2011	1	Aalborg University
-	1st January 2012	1	Aalborg Airport

Tabel 4. Car moved or added during the evaluation period.

In August - September 2011 a minor campaign was launched in the area where the new car sharing places were located.

On 5th December 2011 a new comprehensive campaign targeted to University students was launched, using the social medias and different web based medias and mobile phones as the main medias for this. As stated above, the campaigns showed up to have no noticeable impact on the number of members.

Table 5 below shows the results from the after evaluation period.

Location	No. of cars (Dec. 2011 – Sept. 2012)	No. of rentals (Dec. 2011 – Sept. 2012)	Active users* (Dec. 2011 – Sept. 2012)	Kilometres (Dec. 2011 – Sept. 2012)	Kilometres pr. Car (Dec. 2011 –Sept. 2012)
Stigsborg Brygge	2	308	6	16,050	8,025
Aalborg University	1	30	4	2,894	2,894
Aalborg Airport	1	35	1	2,223	2,223
Mayor's Dept.	1	120	15	12,753	12,753
Fyensgade	2	155	27	16,919	8,460
Herluf Trolles Gade	1	32	7	3,035	3,035
Kennedy Arkaden	1	153	22	11,369	11,369
Total	**9**	**833**	**82[#]**	**65,243**	**7,249**

Table 5. Situation in the period from December 2011 to September 2012.
* Active users are users with 2 or more car rentals in the period.
[#] Not number of unique users, as some users are 'Active users' on more locations.

In spite of the expansion of the scheme with 2 cars and 3 new locations, the results above show a general decrease in all indicators of the use of the car sharing scheme from the baseline period to the evaluation period.

The use of the car sharing scheme had previous been falling during a longer period, but as we have no Business As Usual scenario it is not possible to evaluate if the registered fall during the project period

is less than it would have been without the ARCHIMEDES effort, increased numbers of cars, locations, the redistribution of cars and the 4 campaigns.

Table C2.2 below summarizes the development of the transport indicators for this measure evaluated through the project.

Table C2.2: Car sharing service results

Indicator	Before Dec. 2008 - Sep. 2009	B-a-U Dec. 2008 - Dec. 2009	After Dec. 2011- Sep. 2012	Difference: After –Before	Difference: After – B-a-U
Number of car sharing locations	4		7	+43%	
Number of car sharing cars	7		9	+ 29 %	
Number of car rentals	1064		833	- 22 %	
Vehicle performance (total)	89,827 km		65,243 km	- 27 %	
Vehicle performance (average)	12,832 km		7,249 km	- 44 %	
Active members	105		82	- 22 %	

While the table shows a significant increase of respectively 43% and 29 % in numbers of locations and numbers of cars, the comparison between the two time periods shows a significant decrease of 7% per year in the number of car rentals, 9% per year in kilometres performed in total and 15% per year in kilometres performed by cars. At the same time the numbers of active users went down with 7% per year.

Figure 16 shows a graphical analysis of the trend in the numbers of trips during the project period. The graphs show a clear trend for each year. High level of use in spring and autumn and lower level in winter and summer period.
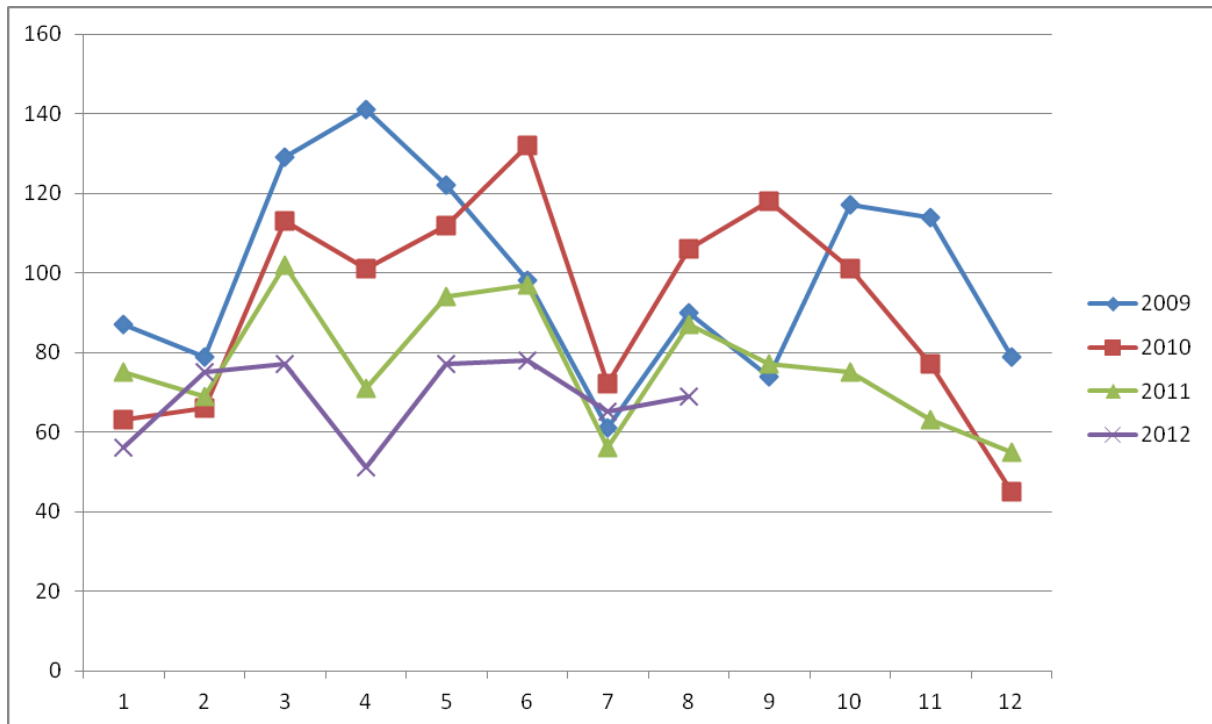
Figure 16. This graph shows the number of car rentals per month at the three locations: Stigsborg Brygge, Fyensgade and Kennedy Arkaden+Frederikstorv.

The graph indicates a falling level of use from year to year. To make clear the size and trend of the fall, Figure 17 includes the trend lines for each year.
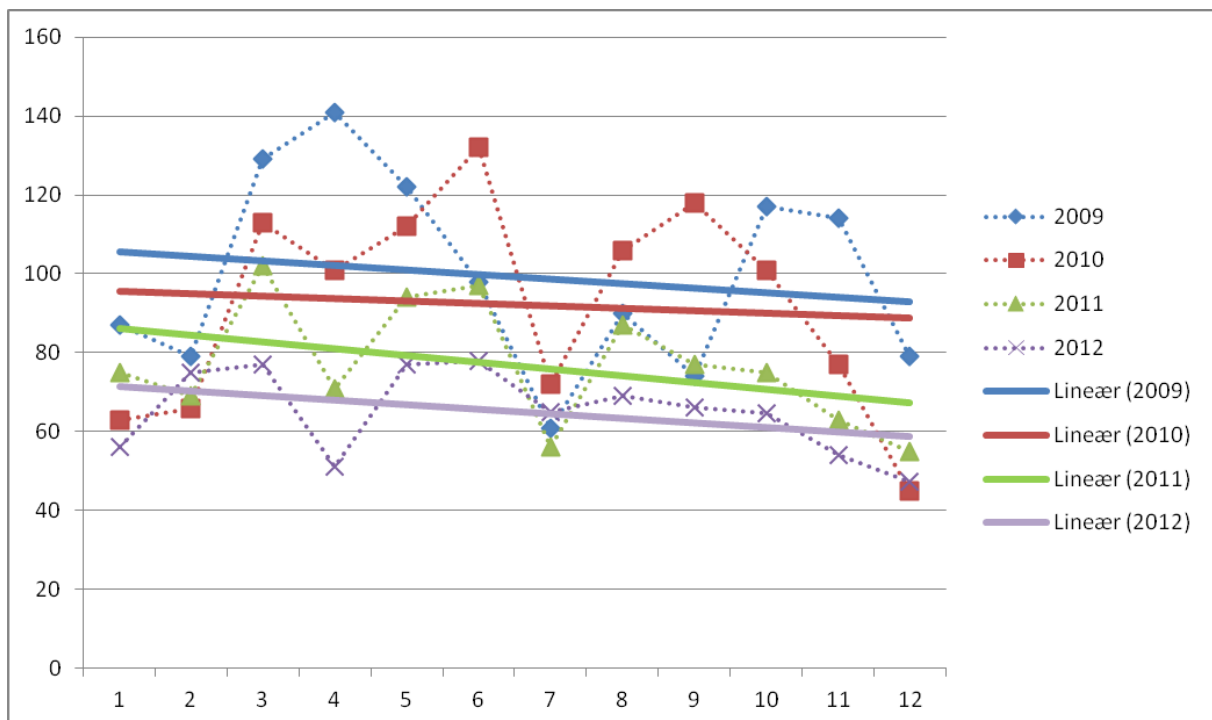

Figure 17. Number of car rentals per months with trendline for each year.
Data from September to December 2012 extrapolated from 2011 data.

While the slope of the trendlines both illustrates the variation over the year and the fall from one year to the next, the vertical distance between each trendline shows the effect from year to year. The graph shows a clear and firm falling trend both during each year and from year to year.

This graph also illustrates the lack of effect from the campaigns and the other initiatives.

In January 2012 it was agreed to relocate a car, that was almost not used at one of the sites, to a parking lot near to the Mayer's administration and agreement was made that the Mayer's Administration should join the car sharing scheme so the civil servant here could use the car as a company car, even though this was more expensive than using own company cars.

Figure 18 illustrates the effect of this change. The level of car rentals in 2012 went up by the numbers of rentals from the Mayer's office, but the falling trend continued, even thought now from a higher starting point. This supports the finding that under the present circumstances in Aalborg, car sharing is only possibly to the degree, that there are public entities willing to use the system, even though it is more expensive than the alternatives.
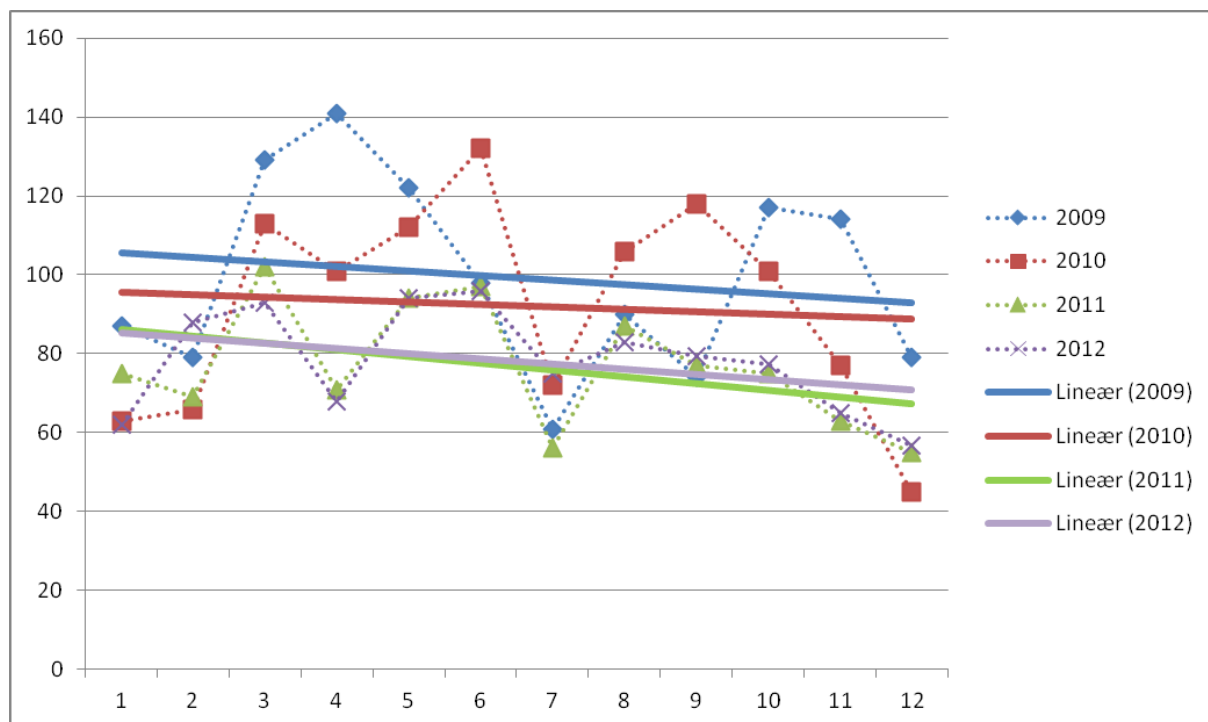

Figure 18. Number of car rentals per months with trend line for each year. 2012 including rentals from the new location near the Mayer's offices .
Data from September to December 2012 extrapolated from 2011 data

C2.2 Society

In December 2006, as part of the STEER MIDAS project an awareness survey of soft measures and information was carried out amongst students at Aalborg University. This survey showed low awareness of the scheme. In 2012, through a questionnaire in combination with ARCHIMEDES Measure 30 among students and employees at the university, the current awareness of the car sharing scheme was to be determined. Regrettably, due to an error, this question was omitted in the set-up of the student part of the survey.

As a consequence the comparison of the levels of awareness in Table 6 is between two slightly different respondents groups. The respondents in the 2006 survey were students, where as the respondents in the 2012 survey were employees at the university. Comparing responses from two

different groups makes it difficult to determine, which part of a difference is a genuine difference, and which part is a fake difference coursed by using two difference respondent groups.

Table 6 shows a fall in the awareness from 2006 to 2012 in spite of the campaigns. Knowing the development in use of the car sharing system in Aalborg, it is assumed, that this fall is real and not an effect of two different groups.

The figures show a long time falling trend in the awareness, 28% from 2006 to 2012. This trend resembles the similar fall in use of car sharing measured in numbers of active users (22% from 2009 to 2012) and in vehicle performance (27% from 2009 to 2012). The fall per year is less in awareness than in use. This might be coursed by a positive effect of the campaigns in 2011 and 2012, but no available statistics supports this hypothesis.

	Do not know	Knows but doesn't use	Knows and use rarely	Knows and use often
Students 2006	82.9	16.3	0.2	0.6
Employed 2012	87.7	11.7	0.6	<0.05

Table 6. Awareness results

In relation to the campaigning activities in March 2011 following dissemination results have been obtained:

- The large bus-stop posters - 175cm x 120 cm -, were shown at 50 selected bus stops for 3 weeks. The advertisement in the buses was shown in 10 seconds timeslots in all 100 city buses each 5th minute for three weeks. In all, more than 375,000 exposures.

The promotion campaign using new social media and aiming at the sub-segment of young computer 'geeks'had the following dissemination results:

- **Facebook:** The advertisement was shown only to the selected target group of young (18-35 years), in the Aalborg area (radius 45 km), with interest for IT and technology. The ad was shown 3.307.045 times; giving 885 clicks leading a person to The Wall competition site.

- **Version2.dk:** The ad was shown 25.096 times, giving 89 clicks leading a person to the hint page. It is not possible to see how many persons scanned the QR code and in this way went to the competition page.

- **The live-screens in all city buses:** The advertisement in the buses was shown in 10 seconds timeslots in all 100 city buses each 5th minute for six weeks: all in all more than 750.000 exposures

- **Email – viral campaign**. To try to start a viral campaign, emails with invitations to join the competition in the campaigns graphical design, were emailed from the project to all connections, using all personal and professional networks – including an urge to send the mail on via the receivers own networks. It is obvious, that is has not been possible to trace to how far the snowball effect has reached.

- **Large posters at the University** 100 posters in 500x700 mm were printed, and put up on the notice boards at the relevant parts of the university.

- **Flyers, distributed in the buses**. As the last attempt to reach the target group, 500 flyers were printed and as many as possible were distributed directly to the students in the mornings buses going to the university area. The flyers were small and handy (80x100mm) and printed on two sides. Again the QR code was used to sharpen the appetite.

In general **the competition site** was reached by more than one thousand people. We don't know how many of these people tried seriously to break the wall, but only 20 succeeded.

Table C2.5.1. sums up the fall in awareness from 2006 to 2012.

Table C2.5.1:

Indicator	Before 2006	B-a-U	After 2012	Difference: After –Before	Difference: After – B-a-U
N 13 Awareness	17.1 %		12.3 %	- 4.8 percent point (28% fall)	

C 3   Achievement of quantifiable targets and objectives

No.	Target	Rating
1	The objective of this measure is to get less traffic.	**O**
2	A 10% increase in car sharing subscribers.	**O**
3	A 50% increase in number of car sharing cars	**O /✲**
4	A 50% increase in number of car rentals	**O**
5	A 20% increase in vehicle performance	**O**
NA = Not Assessed O = Not Achieved ✲ = Substantially achieved (at least 50%) ✲✲ **= Achieved in full ✲✲✲ = Exceeded**		

The objective of this measure is to get less traffic. The traffic level in the city has risen. As the total km in car sharing cars have fallen, there has been no positive contribution to reducing the traffic in the city.

A 10% increase in car sharing subscribers. Due to the existence of free subscription it has not been possible to make up a valid number for car sharing subscribers. The numbers of active users, which can be seen as a substitute for the numbers of subscribers has fallen approximately 7 % per year during the project.

A 50% increase in number of car sharing cars During the project, the number of cars have raised from 7 to 9. Regrettably this is a deliberate management decision and not a result of an increasing demand.

A 50% increase in number of car rentals. During the project the number of car rentals has fallen approximately 7 % per year.

A 20% increase in vehicle performance. During the project the performance per vehicle has fallen approximately 15 % per year, partly as a consequence of a fall in the use of car sharing, partly as a consequence of the mileages being spread over a larger number of cars.

C4   Up scaling of results

Up scaling is not relevant for this measure. The measure should not be up scaled as it has no positive effect. The target group for the measure is limited to students with a limited need for transport by car. The major part of the target group is settled in the areas covered by the existing system. Therefore, the scheme and campaign reflect the maximum extent of a car sharing scheme in Aalborg.

C5   Appraisal of evaluation approach

Evaluation is mainly based on analyse of data from the car sharing booking system. This has been a reasonable approach, but the evaluation has been somewhat hampered by the fact that the booking system has been designed to other purposes, and by the fact that the booking system have been replaced in the middle of the evaluation period.

Furthermore, more cars and locations were added and cars were relocated during the project period to optimise the car sharing system. This has been the right dispositions in the attempt to improve the system and reach the expected goals, but it has introduced uncertainties in the evaluation, making 'all things not-equal'. As a result it has been necessary to choose a before-period that is in fact insides the project period, and to compare before- and after-periods that does not include a complete calendar year.

During the evaluation it is concluded, that this deviations does not influence the result reached.

In addition, after the introduction of the scheme it went into the operation phase, and even though the number of members of the scheme was increasing from 225 in 2005 to 295 in 2007, the performed kilometres by the cars in the scheme was higher in 2006 than in 2007. This indicates that, due to the existence of the free 'C' membership, inactive members of the scheme do not quit the scheme, and that the total number of members (active and inactive) is hence not a very good indicator of the use of the scheme. To complicate the matter further, as a part of a change to a new booking system the Hertz car sharing company 'cleaned' the system by deleting all inactive members in the middle of the project period. So even if the number of members was accepted as an indicator, no comparable 'after' value could be presented. The numbers of active users, that is users using a car more than twice a year, is a better indicator, but this number does not exist for the period before the ARCHIMEDES project – but can be computed when December 2008 – September 2009 is used for baseline.

C6   Summary of evaluation results

In spite of a significant increase of respectively 43% and 29 % in numbers of locations and numbers of cars, the comparison between the two time periods shows a significant decrease of 7% per year in the number of car rentals, 9% per year in kilometres performed in total and 15% per year in kilometres performed by cars. At the same time the numbers of active users went down with 7% per year.

C7   Future activities relating to the measure

The measure was fully implemented in January 2012.

The target group for the measure is limited to students with a limited need for transport by car. The major part of the target group is settled in the areas covered by the existing system.

The survival of the system is depending on a public entity being willing to support the system by using the car sharing cars instead of own cars, despite of larger costs.

Therefore, the scheme will survive on the present level for as long as the municipality is willing to use the cars as described, and for as long as there is still a reasonable amount of private users left. There is no potential for expanding the system.

D Process Evaluation Findings

D.1 Deviations from the original plan

The deviations from the original plan comprised:

- **Change of target group** Originally this measure was aimed at promoting an existing car sharing service towards companies in the ARCHIMEDES corridor, making it possible for the company to subscribe to the scheme and use the scheme for business purposes.

  However, after testing this approach, partly based on modelling of the benefits for the company to join the existing car sharing scheme, and partly on practical experiences from contacting 25 companies in the ARCHIMEDES corridor by mail and a brochure and then by telephone, and encourage them to use the scheme, this approach showed out to be unfruitful. Both methods led to the conclusion that with the current structure of the scheme and the existing circumstances in Aalborg, there were no obvious benefits for companies to join.[4]

  A new target group was hence selected. The new primarily target group is the more conventional target group of students and other young people who have not yet bought their own car. Young people will most likely have a rather small need for car use, and will be able to use the bike or public transport as their main modes of transportation. In certain situations, for example to visit their family or buying larger items or amounts of grocery, a car could be helpful.

  Also "Hertz Car Sharing" who is operating the scheme in Aalborg, normally find their customers in this segment. By improving accessibility and promotion towards car sharing, including also modernised information, an updated online booking system and applications for smart phones, the scheme should reach this target group

  After this change in target group the process continued as described in section B4. Please see deliverable T53.1 'Car sharing in Aalborg' for an exhaustive analyse of the rationale behind the change of target group.

- **Delay in time schedule.** The measure has been delayed partly due to the change in target group and partly due to structural changes at Hertz Car Sharing. Hertz Car Sharing has changed executive twice during the project period. The structural changes have both times introducing a long period of uncertainty in the company, where the interaction with the company has been difficult.

D.2 Barriers and drivers

D.2.1 Barriers

The main barrier turned out to be lack of drivers for the companies – and partly for the private users – to join the car sharing scheme. Besides this, the organisational changes in the car rental company behind the Car sharing scheme, with the resulting lack of focus on the car sharing activity, showed up to be a barrier for success for this measure.

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[4] See section D.2.1 Barriers, D.2.2 Drivers and deliverable T53.1

Preparation and Implementation phase

Organizational

- **Barrier 1: Organisational changes in the car rental company behind the Car sharing scheme.** During the project period Hertz company management changed twice, both times introducing a long period of uncertainty in the company, where the interaction with the company has been difficult.

  After each change of CEO, the new CEO had to develop his own strategy for the company. During a long period after the first change of CEO it was even uncertain if the company intended to continue the car sharing business.

  The car sharing part is a marginal business area for the company, so decisions about this issue are often given low focus compared to the company's other products. A company which experiences such turbulent situations, including downsizing and cost cutting, tends to allocate its resources to the core business and thus moving the attention from marginal business areas as in this situation the car sharing. The support and active contribution from the car sharing company to the campaign work – or even to keeping the car sharing 'in good shape' - has thus been lacking for major parts of the project period – among other leading to delays in the campaign plans, and probably also to poorer effect of the campaign. As a consequence, uncertainty of organisational structure, uncertainty of intentions and lack of focus, hampered the communication and delayed the measure.

Implementation and Operation phase

Problem related

- **Barrier 2: lack of drivers for the companies – and partly the private users – to join the car sharing scheme. Economical or environmental.** The evaluation of potential drivers in Section D2.2 leads us to the conclusion that lack of drivers is the most important barrier.

- **Barrier 3: The financial crises - not sufficient ecological/images benefit from joining the scheme**. When the initial analysis had shown that there were no economical or environmental benefits for the companies to use car sharing, it was impossible to persuade the companies into using the scheme. If it had not been for the financial crises the companies would possibly had valued the images benefit of using green transport higher, and thus being more willing to ignore a bad economical business case.

- **Barrier 4: Distance to the nearest car sharing station** For the companies, the car sharing stations have to be situated on the company or between a couples of neighbouring companies, if not, the costs – real or experienced - will hinder use of the system. For private users, the young target group, the car sharing station has to be situated within a reasonable distance from the users premise. If the distance is more than 500-1.000 meter, the car sharing will not be seen as a realistic alternative.

- **Barrier 5. Need to plan and pre-book / lack of own cars flexibility.** For the companies, the need to plan ahead and the requirement to pre-book, can be a major restriction on the flexibility, making the use of car sharing cars to unattractive compared to the expected savings. As an employee you have to plan ahead, you have to remember to book a car in good time ahead, and you have to handle the uncertainty. What can you do, if you suddenly need a car right now, or what do you do if the car is

already booked when you try to pre-book? This 'cost' have to be balanced up with some real savings, before the company accept to rely on car sharing. The private users, the young target group, are not so sensitive. The typical purposes that this user group uses the car sharing car for, to Ikea or the weekend trip to the summerhouse, is simple to plan and book in good time ahead. The need to book is not a big issue, and having a car of your own is not a realistic alternative.

D.2.2 Drivers

In the attempt to set up a car sharing scheme for companies and later in attempting to convince the target group of young people to use the system, a range of potential drivers were raised and tested. The evaluated value of each is listed below. [5]

Preparation phase

Financial

- **Driver 1: Economic savings from using car sharing.** This driver is normally supposed to be the major driver for using car sharing. Modelling the known costs for car sharing in Aalborg compared with costs for the alternatives – normally having own car, gave the following results:

  For companies: The potentials for saving showed up to be between 0 € at 6.500 km and 1.000 € at 4.000 km. This is a) a rather limited savings potential and b) a rather narrow interval, where savings can be gained. Besides, paying the employee the official fee for using own car is always cheaper.

  For the young user group: Doing up to 6.500 km. is cheaper in a car sharing car, under the conditions, that the alternative would be an own car of same age and size. Using an old car would change the equilibrium. Being a young driver with an expensive insurance could change the equilibrium in the opposite direction. Doing all the traffic with PT would be even cheaper, but another level of services. Besides the km expense calculation, using Car sharing instead of own car has the saving potential, that you tend to do less km. when you have to pay for each, instead of only calculating marginal costs of your own car.

  The driver was further weakened by the fact that in December 2010 the car sharing company raised the prices, with a further negative effect in the number of car rentals as a consequence.

Problem related

- **Driver 2: The environmental effect of car sharing:**

  The energy savings in production: As a companies' alternative to car sharing is to keep the oldest company car for another year, the amount of cars produced will not be reduced. For the young target group, the effect is only valid, if the user alternatively would have bought a car. Usually the alternative for this user group is Public Transport or bikes. Or the use of car sharing is only temporally postponing the acquisition of a car for a year or two.

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[5] For a more in deep going analyse see deliverable T53.1

The lower energy consumption caused by the car sharing car being newer and smaller than the alternative car. For companies use of car sharing: The effect of the car being smaller is not given, that depends on willingness of the company to use a smaller car, but the effect of the car being newer will probably be significant as engine performance has raised notable in the latest years. For young users: For the vast majority of this target group, where the alternative is Public Transport, this argument is not valid. But the few who would have bought their own car, would probably have bought an old, cheap car. And due to the car development and to the cheap cars available on the market; this would typically be a bigger car with an old, more inefficient engine[6].

- **Driver 3: Images effect for the company / private user.** Before the financial crises this argument would be valid primarily for companies working with environment or CSR, but now companies have to evaluate the images effects more against involved costs. This is especially a problem, if they are not convinced that an environmental effect exists – see above. For private users the effect does have some value, but economy weights more heavily for this target group.

- **Driver 4: The congestion effect of one car replacing 4-7 other cars.**

  On road congestion: The argument is often used in European cities. For the companies as target group it is not valid. When the transport need for the company, that has to be met, is supposed to be the same, company car or car sharing car, there will be no effect on road congestion from using a car sharing car. For the young user group the effect is only valid if the user alternatively would have bought and used a car. Then the increased car use, as a consequence of owning a car, would lead to increased congestion on the streets. But usually the alternative for this user group is Public Transport or bikes.

  In use of parking spaces. For some dense European cities this argument is used for car sharing. For car sharing at companies it is not valid. A parked car sharing car takes the same space at a company as the alternative company car. Only if more companies share a car, space is saved, but in the industrial area, such space is not a sparse resource. For the young user group the argument could be valid, but only if the user alternatively would have bought and used a car. Usually the alternative for this user group is Public Transport or bikes.

- **Driver 5: Other reasons for using Car sharing, often given in other car sharing systems:**
  Free access to public parking spaces: In some larger cities with high parking fees, car sharing cars is exempted from paying this fees. If you are a company visiting as lot of customers in the city centre, saved parking fees can sometime counterbalance extra costs for using car sharing. In Aalborg car sharing cars are not exempted from paying the parking fees, and even if they were, parking is free or the fees are lower than in most larger cities and the effect would be less.
  The argument is not valid for the young user group for the same reasons as for companies. Besides, this target group is typically living in the city and is using the car out of the city, to shopping centres in the outskirts with free parking or visiting family elsewhere in the region.

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[6] After-evaluating comment: The development in new cars in the recents year has been a fast and significant change towards small, energy efficient, and cheap cars, to an extend that the alternative might very well be a new car with less emissions, than the car sharing car. This effect is reinforced by changes in tax system making new small cars comparable more affordable compared to older bigger cars.

Easy access for employees to a car when coming with train or plane from other parts of the country. Aalborg does not have this kind of in-commuting company traffic, and thus not the same target group for car sharing.

Free 'A' membership for employees: The value of this argument showed up to be rather low, as the companies estimated that there was a very limited demand for this perquisite among the employees.

Better mobility: For a company the alternative would be using another company car, securing same mobility. Usually the alternative for the young user group is Public Transport, bikes or even renting or borrowing a car. Joining a car sharing scheme would seriously improve the mobility possibilities for this group – given that the economical and other barriers did not limit the realisation of the possibilities too much.

Implementation and Operation phase

Activities in the implementation and Operation phase were conducting three campaigns for car sharing.

Problem related

- **Driver 1: Testing new forms for campaigns.** Even though the result of the three campaigns was sparse, when measured in terms of new members, an important driver was the experiences gained by testing new media for the third campaign. As described in Section B4 all new social medias and a viral campaign was tested.

D.2.3 Activities

Preparation phase

Organizational

- **Activities 1. Working on keeping the car sharing company's focus on the measure in spite of the organisational changes.** Counteraction barrier 1., attempting to keep the car sharing company dedicated to the agreed project, in spite of the organisational changes resulting in three different CEO's having the responsibility during the project. And at the same time respecting the company's sovereignty to decide on organisational structure and prioritisation of car sharing – accepting, that the project was depended on the voluntary cooperation from the company.

Problem related

- **Activities 2. Trying to identify the conditions under which car sharing was an attractive alternative for companies. Trying to find valid arguments to the company campaigns.** Before changing the target group and conducting the campaigns evaluated in this document, a lot of working- and calendar-time were spend in analysing and trying to identify the modal, financial, and environmental drives that should motivate the companies to use car sharing. As one of the activities, a complete calculation model was designed comparing costs of different kind of car ownership under variable conditions. The result of the work and of a direct-campaign to a selection of most likely companies was the decision to change target group. (As the template for this deliverable states, that only implemented tasks may be described, see deliverable T53.1 for a more in dept going description)

- **Activities 3. Change of focus of the measure**. As a result of activity 2, the problems were reported to the project Officer and it was agreed to change target group to test if it was possible to succeed with car sharing with the more usual target group.

Implementation phase

- **Activities 4. Adding more cars, reallocating cars, adding new locations.** As an attempt to make the car sharing scheme more attractive, and counteracting barrier 4, more cars were added and locations were moved or added. All in all this made the distance to the locations shorter, and accessibility easier for the user group.

Operation phase

- **Activities 5. Creating a new internet booking facilities.** By creating a new, modern and more intuitive internet booking facility, the barrier of needing to pre-book (barrier 5) was reduced.

D.3 Participation

D.3.1. Measure Partners

- **Measure partner 1. The City of Aalborg**, City and Partner in the ARCHIMEDES Project playing a Leading role in the measure. The city is project manager and evaluation manager of the measure. As user of the car sharing system, in fact the City acts as safety net under the car sharing scheme, by adding the necessary turnover to the finance the basic car sharing scheme.

- **Measure Partner 2. Hertz Car sharing.** Private company and Principle participant. As responsible for the car sharing scheme in Aalborg, the Hertz Car sharing is a very important player in running and developing the car sharing services in Aalborg. As described above, the quality of the daily operation of the scheme, as well as the possible product-development is critically dependent on the prioritisation and performance in the company.

D.3.2 Stakeholders

- **Companies in the ARCHIMEDES Corridor**. In the original project description, the companies were target group for the campaigns. A selection of the most likely companies was target for the first campaign.

- **Young people, mostly students, in Aalborg**. Target group for the three last campaigns.

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D.4   Recommendations

D.4.1 Recommendations: measure replication

- **Recommendation 1 : The success of car sharing depends on the local context making cars sharing profitable or not !!** – in terms of financial or other dimensions. This is the main and most important finding in this measure in Aalborg. In some European cities car sharing is a success because specific local circumstances makes it a good idea. In other cities these specific circumstances does not exist, and car sharing is not a good idea, neither for companies nor for private users, and possible not either for the City. Such circumstances could be congestion level in the city and shortages of parking spaces in the residual area, but on the

financial dimension it could be factors as fee for parking and cost of car ownership – as the tax level for new cars, or the economical model behind the car sharing company as private company versus car sharing club.

The main recommendation is, that it is absolutely necessary to evaluate all relevant local circumstances before deciding on a car sharing scheme or not.

D.4.2 Recommendations: process

- **Recommendation 2. Realize that taking a private company in as a partner introduces uncertainty in the project.** Taking a private company into a project as a partner is often the right- or a necessarily choice. This should not be avoided, but good project management requires, that it is realized in the risk analyses, that this also introduces uncertainty. Partly because the private company can have it own interests that differs from the project's, for example because the company has its own bottom line to take care of, – partly because organisational changes and the companies prioritisations will be out of the projects hands. The risk can be mitigated by making a good framework agreement with the company before joining the cooperation, but the reality is, that a project often will be too small an issue to really matter, if a company changes prioritisations.