

CiViTAS
Cleaner and better transport in cities

ELAN

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Implementation status report on city fleet management

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1. Summary: Energy efficient city fleet management

1.1. Objectives

Clean and efficient vehicles and the introduction of cleaner/ alternative fuels are a central part of the CIVITAS demonstrations. But just replacing some standard vehicles by clean ones will not be enough to come to a radical new approach having a major impact on the total energy use of the city fleet. The main objectives of the City of Ghent are:

A reduction in the use of fossil fuels in the City fleet

The City of Ghent wants to explore the feasibility of the use of biodiesel (30% mix with standard diesel) and wants to replace existing cars by environmentally friendlier cars to promote a sustainable car fleet. By reducing the use of fossil fuels, the City of Ghent sets an example for the city employees and citizens to become less dependent on fossil fuels.

Efficient use of the city fleet

A City fleet management cell has been installed to increase the efficiency of the city fleet. By providing the car fleet at important and central locations and by providing a reservation tool to organise the mutual use of the pool cars, the city fleet will be used more efficiently. We hereby focus on standard vehicles, more precisely passenger cars.

We will introduce clean fleet vehicles and sustainable fleet management for city administration in support of local air quality objectives within each of the CIVITAS-ELAN cities.

Eco driving: Reduction in fuel consumption through driver training

Eco driving lessons will teach a group of 59 city employees the basic principles of eco driving in order to obtain a more efficient and environmentally friendlier driver style.

1.2. Innovative aspects

The main innovative aspect of the CIVITAS-ELAN project in this field is the integrated approach to cover all factors that can contribute to the main objective to come to the lowest possible energy and emission levels. This will consist of a wide range of aspects:

- The implementation of the best technologies
- Introduction of alternative fuels and mainly B30 biodiesel
- New driving behaviour
- Optimised use of the fleets

2. Timetable

No.	Type	Tasks and planned activities	Month	Allocated to WP
		1.2.1 GEN – Research and development		WP11
1.2 – M1	M	Installation of city fleet management cell	13	WP11
1.2 – M2	M	Research of the feasibility to use bio diesel in the city fleet completed	14	WP11
1.2 – WD1	WD	Finalised GBEV report	15	WP11
		1.2.2 GEN – Implementation & demonstration		WP1
1.2 – M3	M	City fleet Management launched	15	WP1
		1.2.3 GEN – Data Collection		WP1
1.2 – M4	M	Gathering information of the city fleet and fuel use finished	36	WP1
		1.2.4 GEN – In-depth data analysis and studies		WP12
1.2 – WD2	WD	Report on ex-ante and ex-post evaluation of the city fleet and fuel use	42	WP12
		1.2.5 GEN – Measure-related dissemination		WP1
1.2 – M5	M	Eco driving training for city fleet users finished	48	WP1
1.2 – WD3	WD	Report about ecodriving training	48	WP1
		1.2.6 GEN – Dissemination and training		WP13
		/		

3. Reduction of fossil fuels in the City fleet

3.1. *Becoming less dependent on fossil fuels: creation of GBEV*

The dependency on fossil fuels in the world has been questioned since several years. Various attempts have taken place worldwide to reduce this dependency. The innovative approach of our City towards this challenge is a model example in this area. The City Council has supported innovations in this field since the very beginning. It has partnered in GBEV, Ghent Bio Energy Valley.

The GBEV institution has been created to coordinate the research in the field of sustainable bio-energy activities and to promote the economic growth in the port of Ghent. GBEV was originally initiated by Professor Soetaert of the Department of Biochemical and Microbial Technology of Gent University. The legal entity of Ghent Bio Energy Valley is based at Gent University which is also a partner in the CIVITAS-ELAN project. It has grown into a Public Private Partnership between Gent University, the Port of Ghent, the City of Ghent, the Development Agency of East-Flanders and a number of private companies that are active in the field of bio-energy generation, distribution, storage and use.

3.2. Feasibility of B30 in the city fleet

3.2.1. Cooperation between the City of Ghent and GBEV

The study of the feasibility of the use and the production of biodiesel goes hand in hand with the implementation in the City fleet of Ghent City. Since 2008 the Department of Services and Logistics (responsible for the fleet) has created new buying criteria in which for part of the new passenger cars, trucks and vans it is clearly indicated that they have to be able to operate on B30. This new pool of B30-adaptable cars can then act as a test case for the feasibility and opportunities of biodiesel.

3.2.2. City of Amiens, France: a precursor in testing biodiesel in large fleets

In November 2010, we had the privilege to visit the public transport company of Amiens, which has almost 10 years of experience with the use of B30. They are an important reference in this field. The complete report on this visit has been included in the appendix (in Dutch only).

3.2.3. The B30 cars in the Ghent city fleet

As mentioned before, due to the new buying criteria we already have a number of cars in the fleet that can drive on B30. Here you can find an overview of those cars currently already driving in our city.

BRAND AND TYPE	NUMBER OF CARS
FORD TRANSIT	7
FORD TRANSIT 350M Pick Up	8
FORD TRANSIT PICK-UP	5
MERCEDES 318CDI	1
MERCEDES SPRINTER	3
PEUGEOT 207 SW	1
PEUGEOT 308 SW	4
PEUGEOT BOXER	9
PEUGEOT EXPERT	7
PEUGEOT EXPERT TEPEE	3
PEUGEOT PARTNER	11
PEUGEOT PARTNER TEPEE	23
PEUGEOT Partner Tepee Confort 1.6 Hdi	1
SCANIA P320 + laadkraan HIAB 144 + Multilift LHS250	1
SCANIA PRT	1
SCANIA PRT + HIAB 111BS-2 Duo + Multilift LHT250.46	1
SCANIA PRT LB 6x4 + laadkraan HIAB 144E + Multilift	1
VOLVO FL E5	1
TOTAL NUMBER	89

In our approach towards the implementation of B30, we have chosen not to use B30 in the older cars, since for those cars there was no mentioning of the use of an alternative fuel in the purchasing criteria.

Once a supplier is found for the mixing and supplying of B30, we will switch these cars to B30. They are currently running on regular diesel, which by law is already mixed with about 4% biodiesel.

3.2.4. Fuel points and finding a supplier

B30 can only be used if it has been recognised as a biofuel by the Federal Bureau of Economy and Environment (FOD Economie en Leefmilieu). It can only be used by the official partners who are being recognised within the project. Every type of fuel has to comply with the CEN-standard about the quality of fuels.

In the current situation delivery of fuel to the city fleet is handled by one main supplier: Q8. Their contract runs until January 2012. For diesel and petrol, city employees can use the Q8-network throughout the city and Belgium. In Ghent we can use about 11 stations divided over the city. This is a big advantage because our City fleet is spread throughout the city and as a result this is very time efficient. Their national (and even international) network can also be used when activities take us further than the city boundaries.

On page 13 the distribution of city cars is shown on a map.

Since the current contract is ending in about a year the Department of Services and Logistics, responsible for those contracts, has already started exploring the possibilities for the future. As a result we organised a market consultation on 10 December 2010. We invited 14 companies for a presentation of their view on the market and their future plans. Only two companies were interested in attending this forum: current supplier Q8 and Total.

In order to keep an open mind towards energy supply in the future, we have asked the companies about their view on the subject. We discussed various options: B30, CNG, electric, hydrogen, regular fuels,...

Our findings from the market research:

Q8 is focussing on CNG and electric and is currently not working on the introduction of biodiesel. Q8 did not submit a budget quote.

Total is also working on electric and was open minded towards biodiesel. They are preparing a proposition for the delivery of biodiesel. They have formulated a proposal in the form of a budget quote in which they gave price indications and supply information.

3.2.5. Advantages of implementation in the fleet

Biodiesel can be a solution to the diminishing amounts of fossil fuels available on the globe. Regarding the emissions study shows:

- CO₂ reduction
- PM reduction
- Increase in No_x in certain studies

For more detailed information regarding the advantages and disadvantages we refer to the report from measure 1.8-GEN.

3.2.6. Challenges to be solved

3.2.6.1. Permission to use biofuels

Permission by the Federal Department of Economy and Environment to use a 30% biodiesel-diesel mixture: The University of Gent has had several contacts with this department and it is already clear that once a supplier has been found and the other possible partners in the B30 project are known this will only be a formality and should not cause any problems.

3.2.6.2. Warranty cars

New cars come with a warranty for a certain number of years. In the buying criteria we have included the fact that the purchased cars must be able to run on B30 and that warranties should remain the same even when we switch to B30.

At the moment where the cars will switch to B30 we will inform the car manufacturers and the service centres of this action. Experts have advised us to do a complete check up and maintenance of the car right before the introduction of B30 so that the test phase can start with a clean slate.

3.2.6.3. Certification of quality B30

In order to comply with the warranties provided by the car manufacturers we have to be absolutely sure that the mixture used has an absolute maximum of 30% biodiesel (in a range of about 28% to 30%). This maximum level cannot be exceeded under any circumstances to avoid discussions with car manufacturers.

At this very moment, February 2011, suppliers cannot yet give such guarantees. They are currently looking into this matter. They can take samples and run extra tests but it is not yet sure that this is feasible.

3.2.6.4. No tax reductions

Only CIVITAS-ELAN partner De Lijn can obtain a tax reduction. The University of Gent is negotiating this matter with the federal government to see whether a tax reduction would be possible for other partners as well. This would make a big difference in price differences between B30 and regular diesel.

3.2.6.5. Price of B30

The price of B30 is higher than regular diesel. The difference is about 10%. Since we did not yet find a supplier, these numbers are very uncertain and indefinite. This will be taken into consideration in the further development of this project. The ultimate price of B30 will have to stay within an acceptable price range, especially in times of economic crisis and budget cuts in public organisations.

In the budget quote from Total there are price indications which show that B30 would cost about 0.105 eurocent more than regular diesel, taxes not included. The price will also be influenced by the total cost of the project: maintenance, technical inquiries, cost of fuel station and fuel card system,... The fuel system alone would cost a minimum of 19.000 euro.

3.2.6.6. ILUC: food versus fuel

The problems and commotion around ILUC, Indirect Land Use Change, or the whole discussion about whether land for food production and forests are now being used for the production of biofuel. Activists state that this is the cause of higher food prices and loss of valuable agricultural land and biodiversity. The discussion is very complex and will not be further discussed here. In a separate report from the University of Gent this subject will be explained in more detail.

However, the City of Ghent will take these facts into consideration and will follow the European guidelines regarding this subject.

3.2.6.7. Cooperation with other partners

If different parties could work together on the introduction of B30 and the research on the feasibility this would be an addition to the research. The University of Gent has had several contacts with De Lijn, De Post and Ivago (waste management company) to see where we could unite our forces.

In addition, the City of Ghent, Services and Logistics, has set up meetings with the same organisations to see where we could work together.

At a meeting with De Lijn, Ghent division, on 21 February 2011 we discussed this matter. The City of Ghent suggested to co-use one fuel installation, based on the site of De Lijn in Gentbrugge, since De Lijn would do the B30 test case with buses stationed on that site. A possible cooperation would seriously reduce the investment cost of the fuel installation.

A meeting with Ivago is planned for the first week of March 2011.

With De Post we also have agreed to keep each other informed about new developments.

3.3. More environmentally friendlier cars

The world is currently searching for new energy sources. Several trends come and go and it is not always clear which technologies will stay and which will eventually turn out to be the most environmentally friendly. As a public government we think we can play a leading and innovating role in this process by being open minded towards several techniques. Every one of them will be studied in an equal way. Right now we research the following:

3.3.1. B30, biodiesel

This was further explained in a previous chapter.

3.3.2. CNG: Compressed Natural Gas

At the CIVITAS Forum in Malmö in 2010 the Measure Leader of 1.2-GEN had the opportunity to visit a CNG-plant and witness the various advantages of CNG. She also had the privilege to see the implementation in the bus fleet and in the city fleet of Malmö. The city fleet of Malmö has a total of about 1,200 vehicles and is being managed by VISAB, a fleet management company. The largest part of their fleet consists of CNG cars. They think CNG offers a big advantage because the cars running on this fuel type can be easily switched to biogas. Then the circle is round: gases from waste can be the new fuel for their fleet.

In our own city this topic has been under discussion also. Our environmental department was concerned that with the current activities around B30, other fuels such as CNG would be forgotten. We have decided that both will be important roads to explore. However, during the CIVITAS-ELAN project the emphasis will be on B30.

There are currently no CNG fuel stations in the Ghent area, so the purchase of CNG-cars will also depend on the developments in that department. Services and Logistics will closely follow evolution in this market.

3.3.3. Electric

Situation

In the past year and in 2011 the buzz was/ is all about electric. Several car manufacturers have invested in the development of electric cars and are further commercialising this technique. Since a large part of the city fleet is composed of vehicles which show very low mileage and since those cars are only being used for short distances within the cities' borders, electric vehicles seem to be the best choice. The city is already buying 'green' energy and is planning solar panels on the rooftops of the city buildings to complement this. If electric cars can drive on green energy, this would be the obvious choice.

In the Greenery Department, we are investigating the possible purchase of electric utility cars for use in parks because of their zero emissions and their low decibel level. This department has already pioneered with the purchase of three electric Peugeot Partners in 2000. They still use one of those cars. Unfortunately the other two cars showed a lot of technical problems mostly with the battery.

Based upon these first findings the Department of Services and Logistics wants to invest further in this technology, but wants more guarantees regarding battery and other technical issues.

Study Trans Energy

On 1 October 2011, we hired the foundation Trans Energy for a study of the feasibility of electric cars in the city fleet. They are currently working out an electric plan of the future for our city fleet. We are awaiting their results.

The following is being researched by the foundation:

- Feasibility study: which standard city fleet vehicles can be replaced by electric ones taking into account their use
- Future electric plan for the development of the city fleet
- Proposition implementation timing
- Impact on city fleet budget of an operational renting including technical changes for user goals
- Environmental impact when implementing proposed plan

Based on the results of the report City of Ghent will decide on possible future cooperation with the foundation.

4. Report on ex-ante and ex-post evaluation of the city fleet and fuel use

4.1. Situation before CIVITAS/ present situation

4.1.1. Numbers and facts

The car fleet is divided among the different city departments and each of them has its own approach towards managing it. Therefore there is a need for central fleet management.

We aim to make further use of innovative clean vehicles in the city fleet, however we are not willing to take financial risks implementing prototype vehicles or vehicles which haven't proved their technical successes yet. We look for the best, already operating products on the market.

At the start of the CIVITAS-ELAN project the composition of the city fleet was the following:

The City of Ghent has quite an extensive fleet. The cars used in the pool system are spread all over the city throughout the different departments and operational sites of the cities' services. We have a total of 875 vehicles in the combined fleets of the city, police department and fire department:

For 2008:

- about **476** cars in the city fleet (passenger cars and vans up to 3.5 t) and approximately **104** large trucks, tractors and utility cars (different varieties)
- **250** cars for the police department (including mopeds, vans, ...)
- **70** cars for the fire department (including large trucks)

For 2009:

- About **529** cars in the city fleet (passenger cars and vans up to 3.5t) and approximately **104** trucks, tractors and utility cars
- **250** cars for the police department (including mopeds, vans,...)
- **60** cars for the fire department (including large trucks)

For 2010:

- About **500** cars (passenger and van up to 3.5t) and approximately **110** large trucks, tractors and utility cars
- **300** cars for the police department
- **75** cars for the fire department

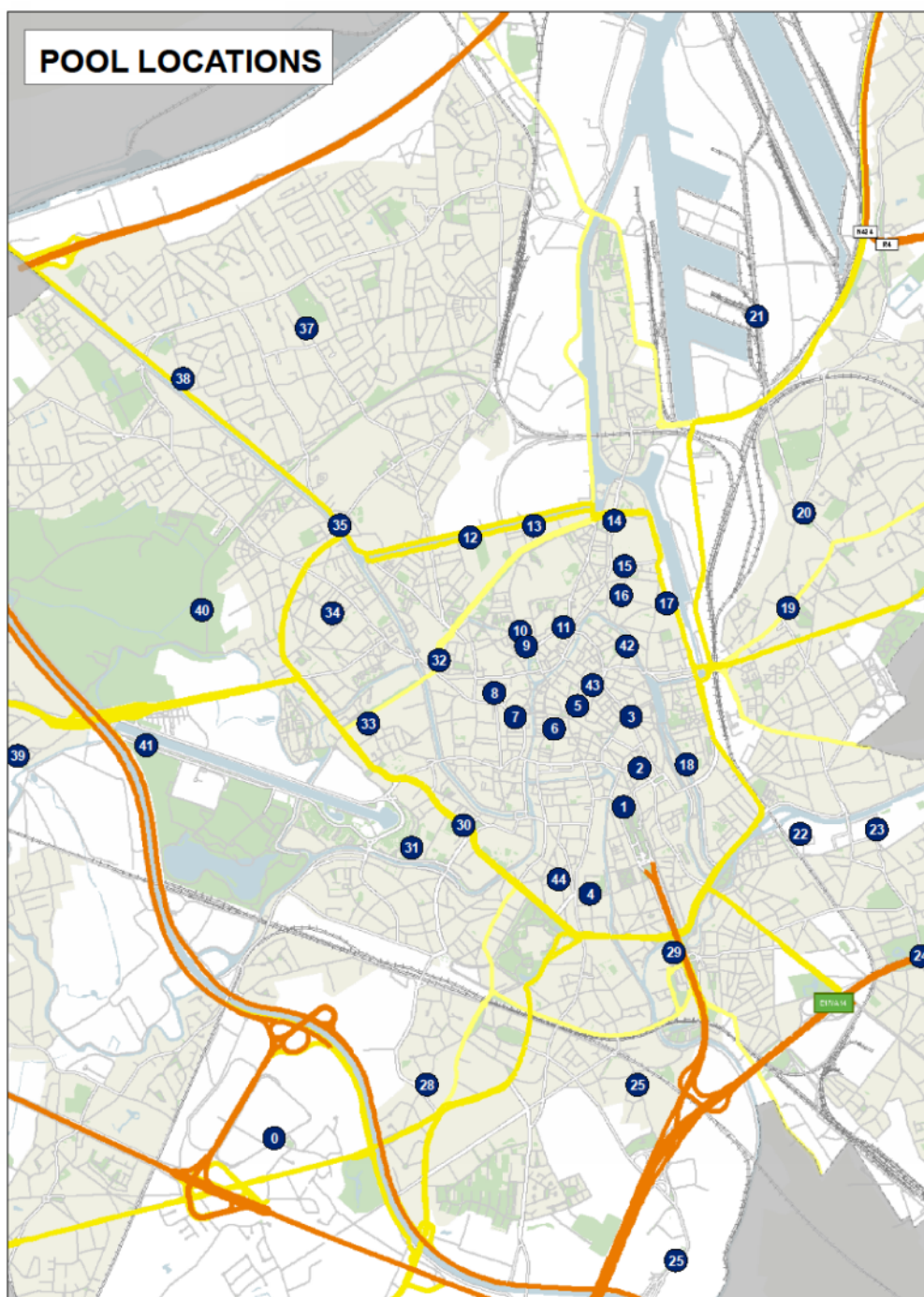
4.1.2. Difference between pool cars and other

In the City of Ghent we make a distinction between:

- Pool cars: cars used on a certain location which can be used by all the co-workers at that particular location
- Other: cars used by the departments for specific tasks (technical tasks, supervision, intervention,...). These cars are not shared and are only assigned to a specific work cell.

4.1.3. Location of pools

We have indicated the different pool locations on the city map of Ghent. This gives a good overview of the situation. Since cars are sometimes relocated due to maintenance, needs of other departments, etc. the number of cars is a snapshot at a certain moment in time.



NUMBER	POOL LOCATION
1	AC Zuid + Graaf van Vlaanderenplein + Library
2	Abeelstraat
3	AC Portus
4	Sint-Pieters-plein
5	Botermarkt
6	sint-Niklaasstraat
7	Sint-Michiels
8	Ramen
9	Augustijnenkaai
10	Academiestraat
11	Grauwpoort
12	Gasmeterlaan
13	Kaprijkestraat
14	Sint-Salvatorstraat
15	doornzelestraat
16	Nieuwland
17	Kraankinderstraat
18	Ferdinand Lousbergkaai
19	Antwerpsesteenweg
20	Grondwetlaan
21	Farmanstraat
22	Dulle Grietlaan
23	Gentbrugge Aard 2
24	Braemkasteelstraat
25	Ottergemsesteenweg Zuid
26	dorpsstraat Zwijnaarde
27	The Loop
28	Maaltebrugge
29	Digipolis
30	Martelaarslaan
31	Jubileumlaan
32	begijnhoflaan
33	Krijgsgasthuisstraat
34	Kastanjestraat
35	Westerbegraafplaats + Palinghuizen
36	Vaartstraat
37	Lusthoflaan
38	Paul Van Tieghemlaan
39	Drongenplein
40	Bourgoyen
41	Zuiderlaan
42	Baudelopark
43	Kammerstraat
44	Kattenberg

4.1.4. Car policy

At present there is not yet a common policy regarding the use of the (pool) cars in the city fleet. Every department has its own rulebook of car use and the Department of Services and Logistics makes sure that every car has a document with information regarding what to do in case of an accident, fuelling the car, etc. We are currently working on an extensive guidebook which will group all the necessary information.

4.1.5. Reservation management

Currently, the reservation management of the pool cars is being coordinated at the front office at every department. This is still done the old fashioned way on paper forms.

Action Item	Action	When	Remarks
Description of Actions (past, present, future)			
1	registration on paper at front desk at every department and pool location	since several years	
2	registration of number of driven kilometres through the Q8-system of fuel provider Q8. At every fuel stop the user of the fuel card has to put in the number of kilometres (through dashboard information) in the Q8-system	since 2002: past and present	no fault correction in the system of Q8. Consequence= lots of mistakes in number input resulting in inaccurate information
3	specifications for new cars minimum of euro 5 (trucks) and euro 4 for vans and school busses	since 2004: past and present	every new car has to comply with these rules
4	creation of a digital reservation tool for passenger cars and vans in cooperation with CIVITAS-ELAN partner DIGIPOLIS	present (creation) and future (implementation by September 2011)	
5	installation "black box" in cars to track driven kilometres, speed, fuel use,...	future	
6	installation electronic key box which will operate as Key Manager, automating the whole process from picking up and returning the car keys,...	future	

7	new general Car Policy for all departments which will include all the new rules and methods for the use of the pool cars	2011 (implementation)	
8	encouraging use of alternative forms of transportation: walking, biking, public transport,...	future	in cooperation with other departments. Will also be included in the new car policy
9	after analysis of the use of the existing fleet, some less used cars can be removed from the city fleet	2011	
10	after analysis of the use of the existing fleet, some less used cars can be shared by different departments	future	
11	carwash: cars need to be washed. Currently there are no general rules for an ecological, sustainable washing of the cities' cars. The Department of Services and Logistics is looking for a general system in cooperation with several other departments of the city and with partners outside the city.	2011	this is not a goal for 1.2-GEN but we considered this also important for sustainable fleet management

4.2. Description of the work performed within 1.2-GEN

4.2.1. Research & development

The Measure Leader of 1.2-GEN has established an overview on the energy consumption of the city fleet to be considered and a matrix for assessing them, in close cooperation with the Site Evaluation Manager.

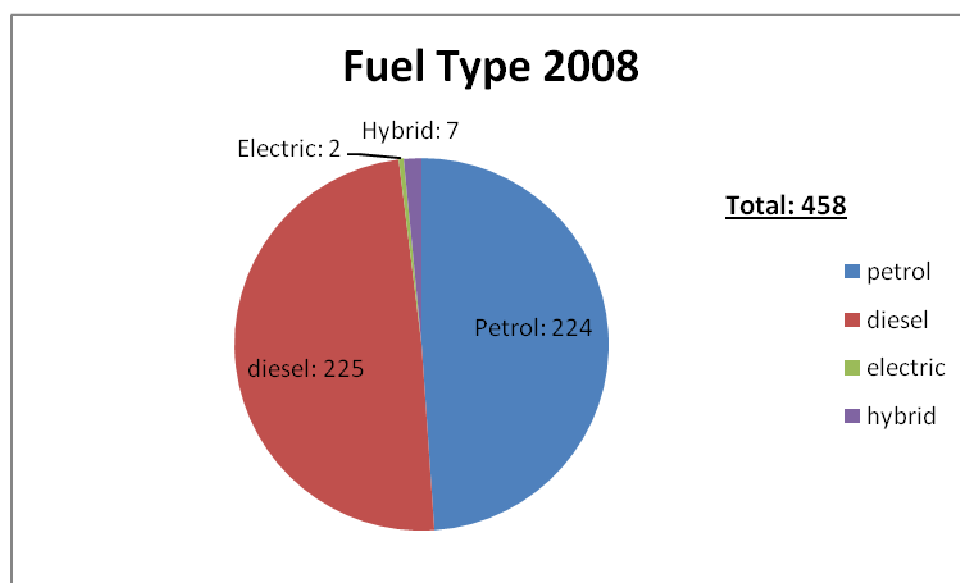
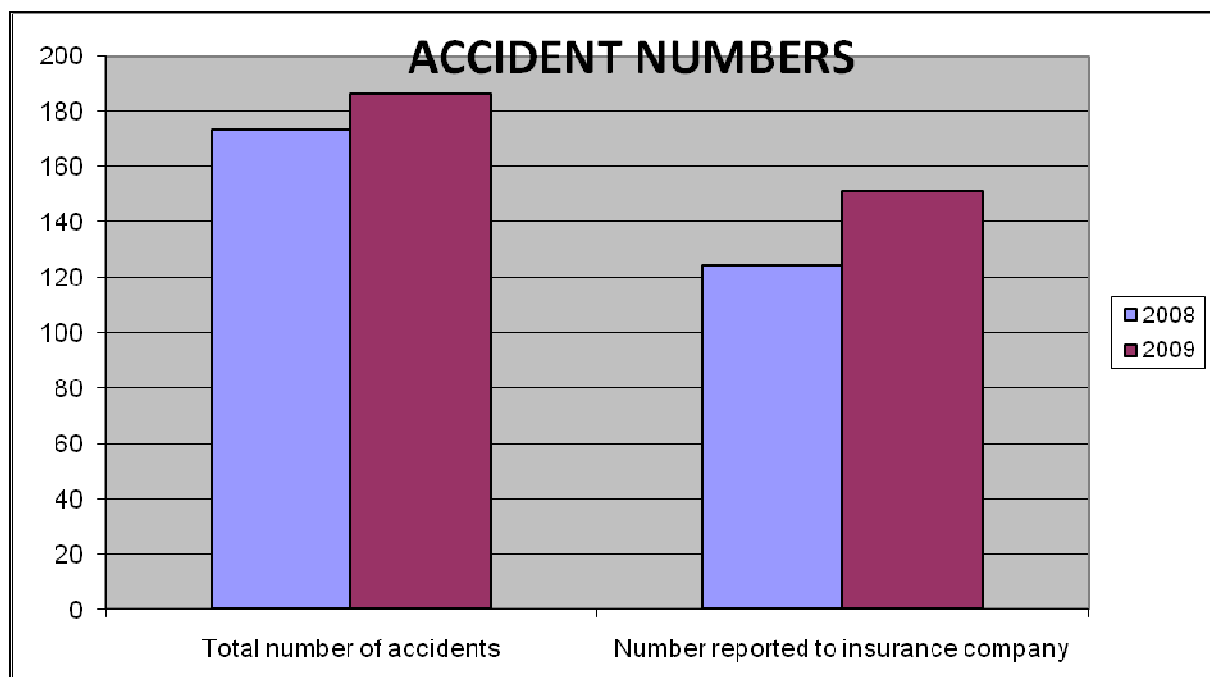
4.2.2. Data Collection (WP1)

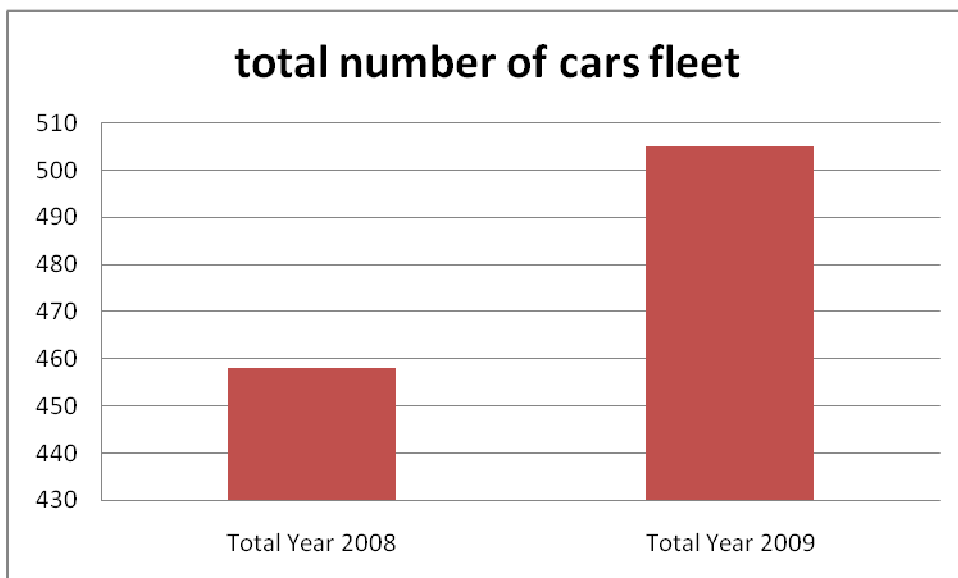
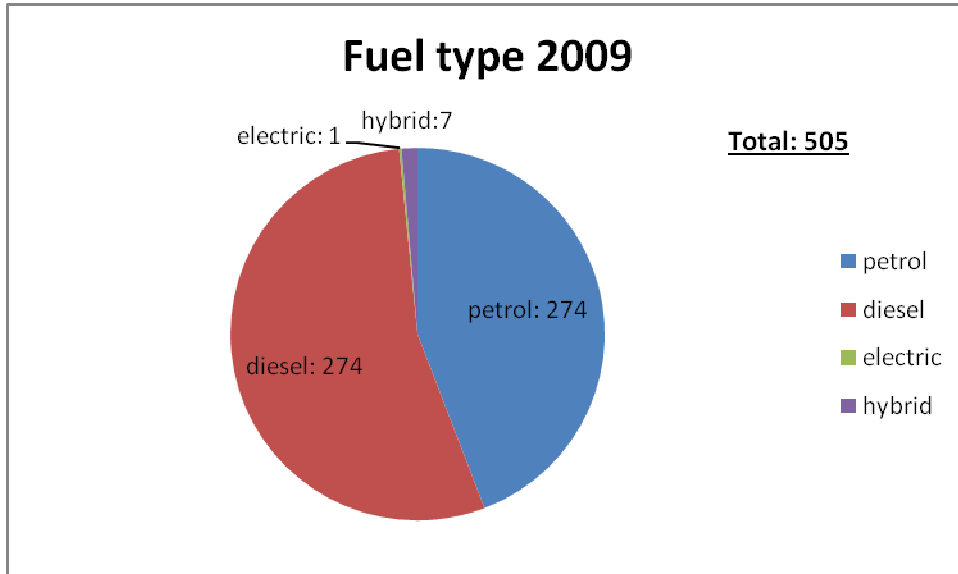
To evaluate the integrated approach to cover all factors that can contribute to the main objective to come to the lowest possible energy and emission levels the following information is being gathered:

- Number of cars before, during and after the implementation using appropriate indicators
- Total number of driven kilometres before, during and after the implementation
- Ecoscore and euronorm
- CO₂ emission levels for each car

- The fuel use (in total, alternative fuels/ bio diesel in percentage of overall use) at the beginning, during and the end of the project per type of vehicle
- The cost of the fuel use per year

Data-gathering and processing for 2008 and 2009 has been completed. For the year 2010 almost all data has been gathered but not processed. We give some numbers in the graphics below.





4.2.3. In-depth data analysis and studies (WP12)

Due to the fact that the fleet will be assessed at the beginning and throughout the CIVITAS-ELAN project it will be relatively easy to measure the impact of this measure. Besides, it is expected that a substantial increase of the awareness for energy consumption of public fleets will be observed. We will report on this at a later stage of the ELAN project.

Once a full view of the fleet is obtained, choices can be made about the future plans with the use of the fleet. These plans can include:

- Removing cars that are being underused
- Replacing cars with more environmentally friendly vehicles: choosing the right technology for the need of the department
- Cars with low mileage could be replaced with electric cars or extra (electric) bikes
- Moving vehicles from one location to another if it will be better used there
- Sharing cars between two or more services

4.3. Reservation tool for pool vehicles

4.3.1. Reservation tool

The City of Ghent is developing a reservation tool for the management of the cities' fleet of pool cars and bikes. We have already finished the business analysis phase and are now searching for the right software developer to complete this task. In the meantime we would like to give you an example of the schemes we created in the business analysis.

4.3.2. Goals of the reservation tool project

The different departments of the City of Ghent will use a central reservation system for pool cars and pool bikes. The system will support all reservation processes. The ultimate goal is to manage the pool as efficient as possible. We thereby aspire for an optimal, sustainable fleet management system without compromising easy every day use of the cars.

Co-workers of the several city departments, hereafter called "applicants" will be able to effortlessly reserve cars and bikes in a well-known 'outlook'-environment. This will all happen using the already existing "intranet". The "key user" will be able to manage the whole reservation process in the application.

4.3.3. Current situation

In 2009, the City of Ghent won the 'Fleet Green Award' for the cleanest city fleet in Belgium, but with the installation of the reservation tool we go one step further towards a green fleet management. At the moment the fleet is still insufficiently used: there are more cars than necessary, there are still plenty of diesel cars and not all the drivers use the most economic/ ecological driving style.

4.3.4. Test phase reservation tool: Pilot locations

We will introduce the reservation tool at the following locations:

Phase 1:

- Farmanstraat (location of Services and Logistics and central garage): 4 cars
- Farmanstraat (Cleaning and Services): 8 cars

Phase 2:

- Sint-Salvatorstraat (location of the Facility Department): 7 cars
- AC Zuid: main building city administration: 6 pool cars
- AC Portus: 2 pool cars

Phase 1 will be the crucial test of the system. Feedback from users and system manager will be very important to evaluate and adjust the system.

In the following text, we have made a resume of the description of the system

4.4. Relevant facts and assumptions

4.4.1. Out of scope

- Management other vehicles (= non-pool vehicles)
- Car maintenance, out of order reports, fleet management system (currently also under construction)
- Management bike gear (helmets, rain coats,...): this will be a duty for the people at the front desk

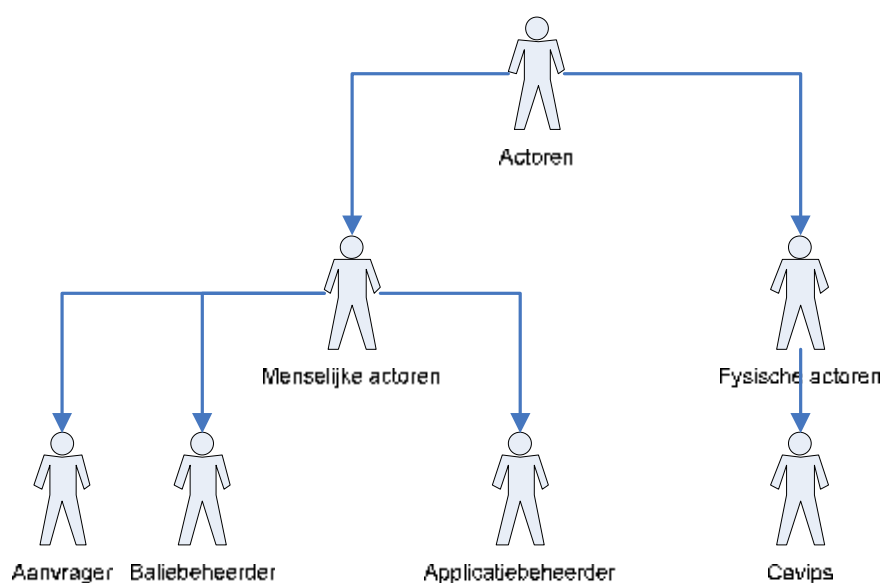
4.4.2. Critical success factors

- CIVITAS goals
- Timing: finding the right software company to develop the system within the budget: we have received two quotes which estimate the total cost of reservation tool 40.000 and 50.000 Euro. Within CIVITAS-ELAN we only have a budget of 18.000 Euro. Since then we have been searching for extra budget to support the creation and implementation of the system. When this barrier is gone, the project will be relaunched by DIGIPOLIS in the following months.

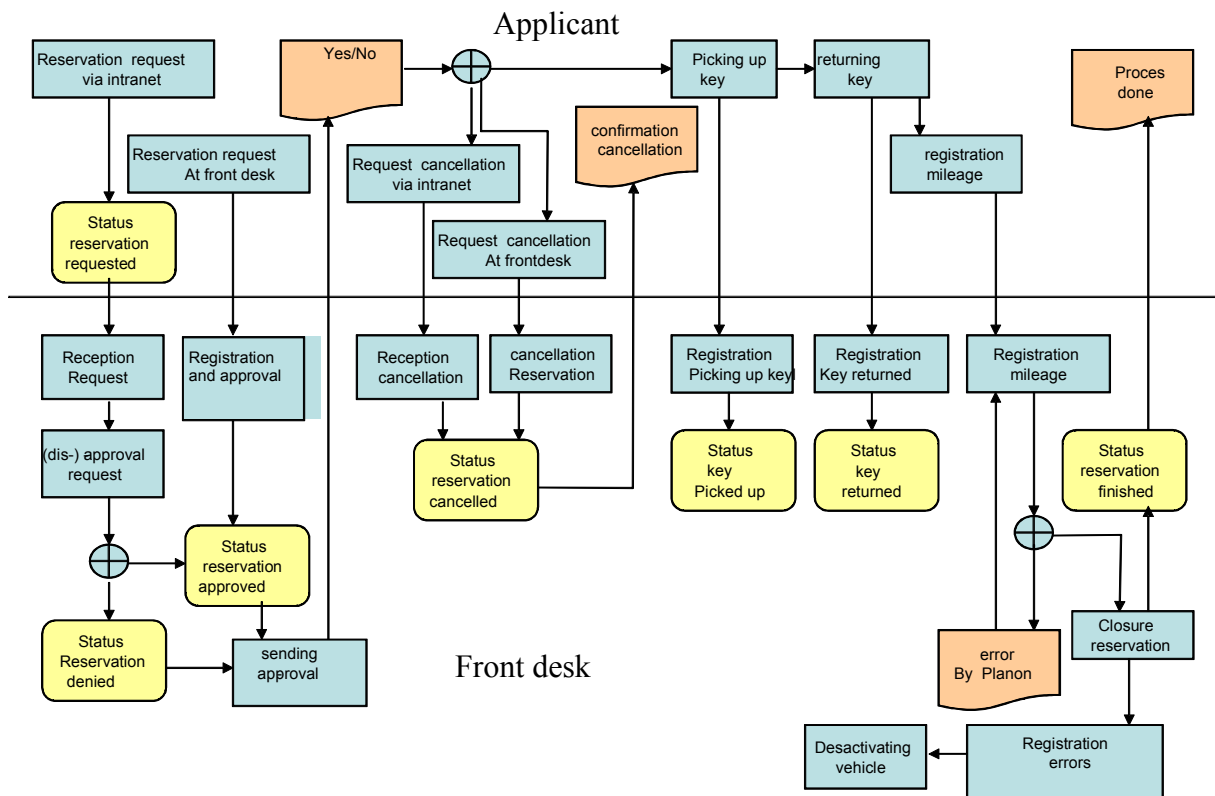
4.4.3. Processes

4.4.3.1. Process “reservation poolcars”

Process diagram



Actor Name	Description
Applicant	The 'applicant' will be able to reserve a certain pool vehicle at the desired time and can also cancel the reservation if necessary.
Front desk manager	responsible for the daily management of the reservations in the system at his/ her department. In concrete, this will be the front desk manager already assigned to these tasks at their department. They are already responsible for reservation management (on paper) and key management.
Application Manager	has access to all functions of the system and can make changes to the system such as: changing/ adding/ deleting fields, making reports for use in analysis of the use of the fleet, blocking/ opening entrance for front desk manager, etc.



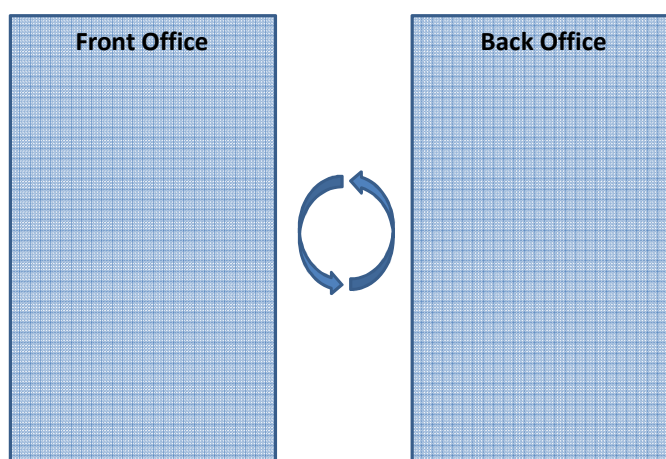
4.4.4. Description of activities

Activity	Description
Reservation request via intranet Request application	The applicant can request a new reservation via intranet The front desk manager receives request applicant and fits request in planning
Dis-/ approval request	Front desk manager decides to approve/ disapprove the reservation request.
send approval/ disapproval Reservation request at front office	Front desk manager informs the applicant of decision Alternative for reservation requests through the intranet. Applicant can make a direct request at the front desk.
Registration or approval of registration	Only registration of approved reservations.
Cancellation request via intranet	Applicant can, just until the moment of key collection, cancel the reservation. Processing cancellation of a reservation is automatic
Cancellation request via front desk Cancelling a reservation	Applicant can, just until moment of key collection, cancel the request at the front desk. Processing cancellation of reservation is done 'manually' by the front desk manager.
Collecting key Registration collecting key	Applicant collects key at the front desk Front desk manager makes registration of fact that key has been collected by applicant.
Returning key	After using the car, applicant returns the key at front desk. Front desk manager registers this and applicant signs document stating the key return
Registration mileage	At return key, applicant registers mileage. (number at start ride and number returning).
Registration return key Registration mileage Closure reservation	Front desk manager registers return in the application Front desk manager registers mileage. (start and end). When all conditions are fulfilled, front desk manager closes reservation in the application.
Registration error	When error occurs in vehicle, this shall be registered by front desk manager in another software program.
De-/ Re-activating vehicle	In case of serious technical problems, car can be removed from pool. And of course, when problem is fixed, reactivated in the system.

4.4.5. Functional needs

Front office vs back office

Within the application a difference has to be made between the functionalities front office and back office. Both modules have to be connected and have to exchange information between one another.



Front office

The front office embraces a web based solution, accessible through the intranet. This application will be used by the applicant and will allow him to:

- File a new application
- Look at the status and details of previous requests
- Cancel a filed application

Back office

The back office will be used by the front office manager and the application manager and can be a web based solution (user friendliness prevails). This solution allows the users to manage the application and to handle the requests.

Basic principles and data-authorisation

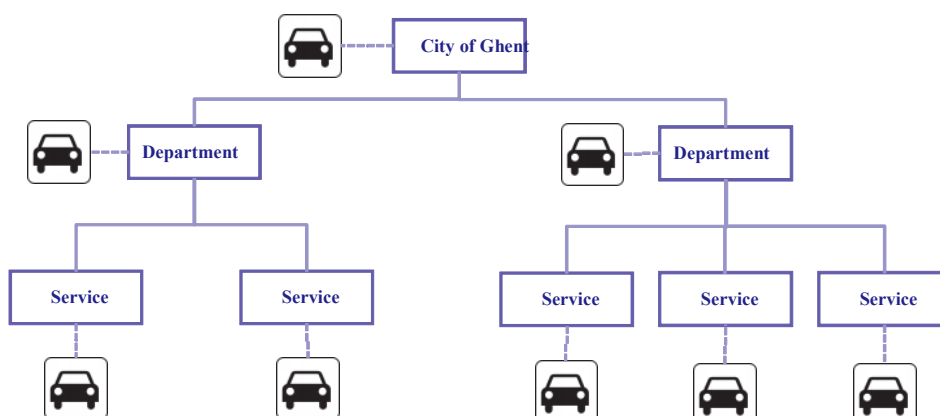
Within the selected solution, the following basic principles will be handled:

Definition of pool car:

- The notion “pool car” has been deducted from the English word “car pool”. According to the Oxford Dictionary it can be defined as follows: “*An arrangement between people to make a regular journey in a single vehicle, typically with each person taking turns to drive the others*”
- Within the solution we use following definition: a pool car is a vehicle of the City of Ghent, which can be used by a group of co-workers and can be shared during work transport. A pool car is not assigned to 1 person.
- A group of pool cars, used by 1 (or more) (groups) of employee(s), is called a pool. This group is limited to only 1 geographic location.

At the level of the pool cars:

- Accounting wise the pool cars belong to their respective departments, where a subdivision is made per service
- Within the solution every car is being assigned to a service, a department or at city level. A co-worker can only use a car from a certain service or department if he/she works for that service/department. Cars at city level can always be 'pooled'.
- Every car is always connected to exactly 1 parking spot. Every car has to be returned at the same spot.



At user level:

- An applicant is always an employee of the City of Ghent, with a reference in the CEVIPS system, the central personnel file.
- One applicant can work for one or more services and affined departments. The applicant can reserve the cars from these services or departments.
- The front office managers are linked to one geographic pool and manage all the cars in this pool. These can be cars from several services or departments. Every car from that pool can be borrowed to the employee who has the required rights to a specific car.

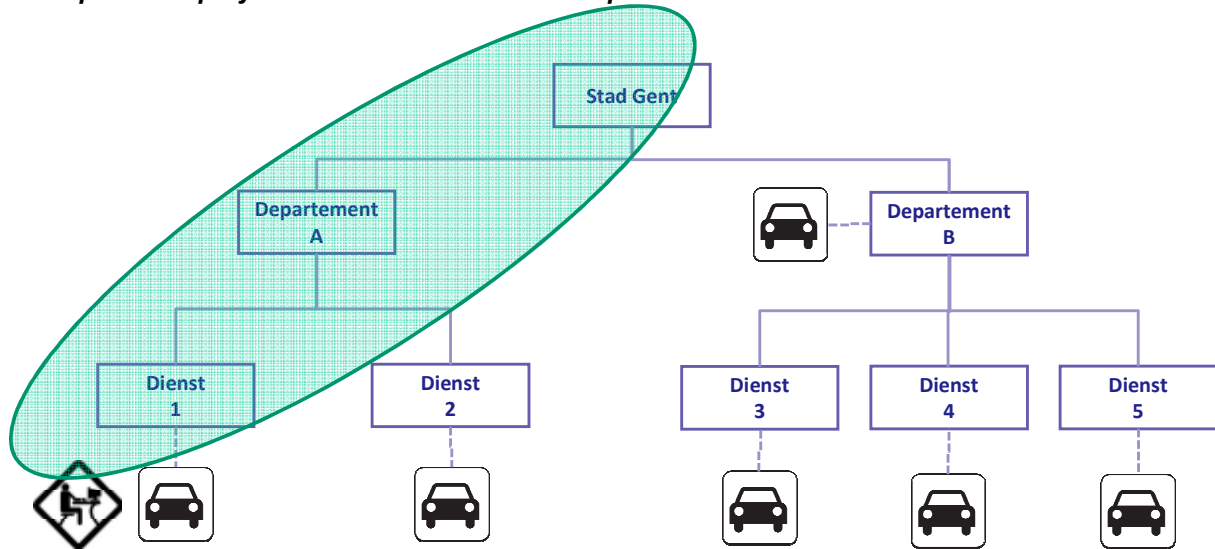
Scenario's outside the scope:

- Exchanging cars between services: through a functionality in the application to assign the pool to the department level, this makes this the case for all subdivisions.
- Exchanging a specific pool car between services or between a service and an employee. In case an employee has works for several services, he/ she will be able to access the poolcars from those different services (sharing always happens at pool level).

Data-authorisation: which employees can reserve a car?

We illustrate the possibilities here below with practical examples. The pool cars the employee can reserve are indicated with a green circle.

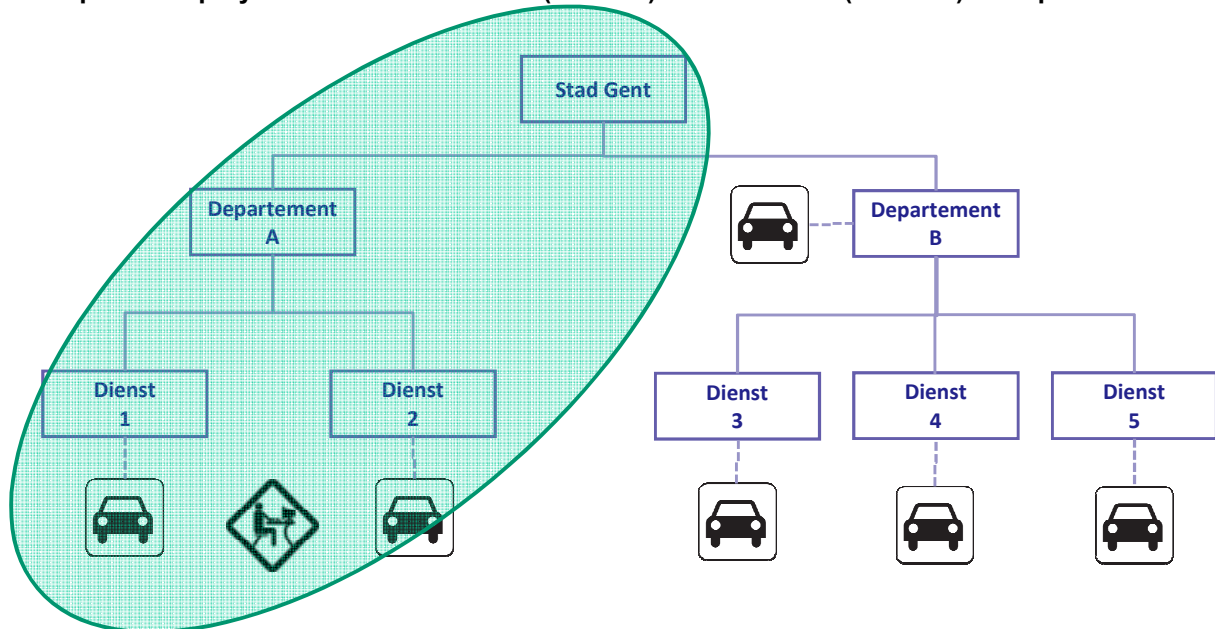
Example 1: Employee works for Service 1 in Department A



Conclusions:

- Within the application no pool cars have been assigned to Department A. Also the pool cars are not being used at city level.
- The employee can only reserve a car from the pool assigned to Service 1 (Dienst 1).

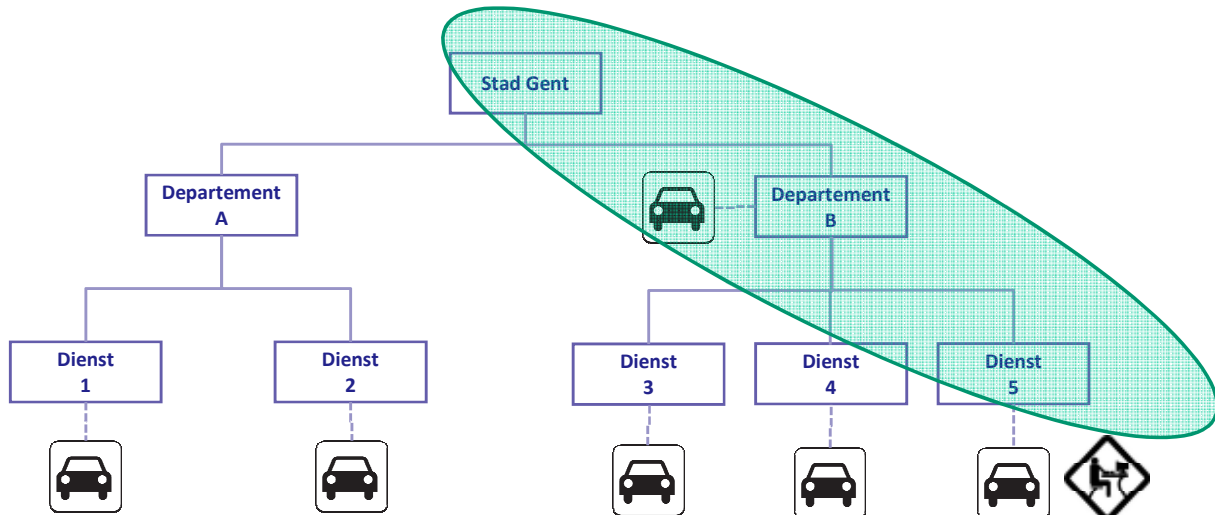
Example 2: Employee works for Service 1 (Dienst1) and Service 2 (Dienst 2) in Department A



Conclusions:

- Within the application there have been no pool cars assigned to Department A, also the pool cars are not being used at City level.
- The employee can reserve pool cars from the pools assigned to Dienst 1 (Service 1) and Dienst 2 (Service 2).

Example 3: Employee works for Service 5 (Dienst 5) and Department B has pool cars which can be used throughout the whole department.



Conclusions:

- There are no poolcars to be used at city level
- The employee from Service 5 (Dienst5) can make a reservation for the pool cars from Service 5 (Dienst5) and Department B.
- All other co-workers from Service 3, 4 and 5 (Dienst 3, 4, 5) can reserve pool cars from the pool of Department B.

!These examples are not restrictive and other combinations are possible!

Facts and field definitions

1. Front office

Step 1: Application form

Name	obligatory	Type	Remarks
name of driver	Yes	deactivated field	Automatically filled by logging in to intranet, though adaptable in an extra field with search and filter functionalities. (linked to CEVIPS personnel files)
departure location	yes	menu	not filled in automatically. This is a menu which will be limited to the locations assigned to the employee (see data-authorisation)
departure date	yes	date field	Manually filled in or selected through graphical calendar. Chosen date cannot be in the past.
departure hour	yes	menu	Two selection fields for hour and minutes. Choice of minutes limited per 15 units. (00, 15, 30, 45 minutes)
arrival date	yes	date field	Manually filled in or selected through graphical calendar. Chosen date not in the past.
arrival hour	yes	menu	Select time
number of persons in the car	yes	menu	Numeric menu, standard = 1, maximum value = 10

big/ bulky luggage destination	yes yes	radio button menu	Values= "yes" en "No", standard = "No" Predefined values : <ul style="list-style-type: none"> • [Null] (standard selected) • Within city borders • Outside city borders (in Belgium) • Abroad (foreign country)
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Remark: ALL fields are required (obligatory)

Step 2: Fill in form – menu choice vehicles

After completing the form, the application will give a selection of selected cars, filtered by following criteria:

According to authorised cars for employee

According to type of vehicle

- When "big luggage" = "yes" AND "number of persons in car" = "1" or "2", then "type of vehicle" = "break" or "monovolume"
- When "big luggage" = "no" and "number of persons in car" = "1" or "2" then "Type of vehicle" = "Hatchback"
- When "number of persons in car" = "3" or "4", then "type of vehicle" = "break"
- when "number of persons in car" > "4", then "Type of vehicle" = "Mono volume"
- when suggested type = "hatchback" and "number of vehicles available" = "0", then the system will search for available vehicles of all types
- when suggested type = "break" or "mono volume" and "number of vehicles available" = "0", then message = "no results" with announcement "no vehicles found within search criteria, please contact front desk manager"

According to availability

- only vehicles available at chosen times
- only vehicles available/assigned to for applicant
- only vehicles who have status "bookable vehicle" (not in maintenance or ...)

According to location

- Only vehicles for which location is equal to departure location of driver (is not necessarily the same as workplace driver)

According to time buffer

- The application has a time buffer between two following requests for reservation to avoid overlap
- Time buffer = 30 minutes → the application only shows the vehicles that are available when "hour departure – 30 minutes"
- This time buffer has to be adjustable by the application manager.

The application presents an available vehicle and asks applicant if he/ she wants to confirm. The application takes into account the occupancy of the available vehicles (when there is more than one

available). In case of multiple possibilities the application will propose the vehicle with the highest occupancy at the same day.

The applicant can always return to the previous screen where he/ she can change the parameters of the application. The search algorithm will be repeated again even when the applicant doesn't change anything (the situation of availability might be changed in the meantime).

The application gives a reservation number to every status "reservation approved" and keeps track of the date of application.

The application sends the applicant a confirmation message via email.

Step 3: Overview of the filed reservations and requests

In the application the user needs to have access to all requests and reservations that have the following status:

1. Reservation approved

The following fields are consultable at the same screen: (non changeable)

Field name	Remark
reservation number	from reservation form*
departure date	from reservation form *
departure hour	from reservation form *
return date	from reservation form *
return hour	from reservation form *
date requested	from reservation form*
current status	from back office application, actual status, predefined values: <ul style="list-style-type: none"> • Reservation requested • Reservation requested
date last status change	from back office application, date actual status

* when changed by front desk manager data comes from the back office application

2. Back office

A. Reservation request

The front desk manager can consult an overview of all the reservations from the cars under his/ her authority.

Every reservation from the list can be viewed with a simple 'click'. This shows a detailed screen of the reservation with all the information regarding the reservation.

The front desk manager can also use a graphical planning board where the availability can be easily checked.

B. Inventory vehicles (managed by the application manager)

The application manager has to be able to manage the inventory of vehicles:

- Registration new vehicles
- Changing data of existing vehicles
- Deactivating existing vehicles (changing status)
- Removing existing vehicles

C. Management system parameters

The application manager can manage the following extra system parameters:

Time buffer (in minutes)

- Standard value = 30
- Free adjustable from 0 to 99

Vehicle type

- Standard values:

Hatchback
Break
Van
Mono volume

Location key

Text field freely inserted, changeable, removable

Location car documents

- Text field freely to insert, change or remove

Brand

- Standard values:

Opel
VW
Peugeot
Toyota
...

Type

- Type of selected car depends on the brand

Not collecting vehicle

When the applicant doesn't collect the vehicle within a certain time frame, the application will free the car in the system. This time frame is 30 minutes, but this can be adjusted by the application manager.

D. User management

The system needs to have a link with the CEVIPS-system, the central personnel file of the City of Ghent.

- Categories: The application manager assigns rights per user. There are three different categories:
 - Applicant: Generally every user is known in the CEVIPS system. These users can reserve/ cancel a pool car via the intranet.
 - Front desk manager: These users are the managers of the back office application and can change reservations, cancel,...
 - Application manager: These users are the managers of the entire application and can assign rights to users, manage inventory of vehicles,...

Reports from the system (for evaluation purposes)

- Number of kilometres per reservation
- Duration of a reservation
- Number of times a car is being shared (number of passengers)
- Number of cancellations of reservations through the system
- Number of times key has not been collected
- Number of times car has been reserved and key has been collected, but no kilometres have been driven
- Overview occupancy (to identify peaks and lows in the use of the cars)
- Overview users and number of their reservations and the number of driven kilometres
- Discrepancies on returning the vehicles: too late, too early
- ...

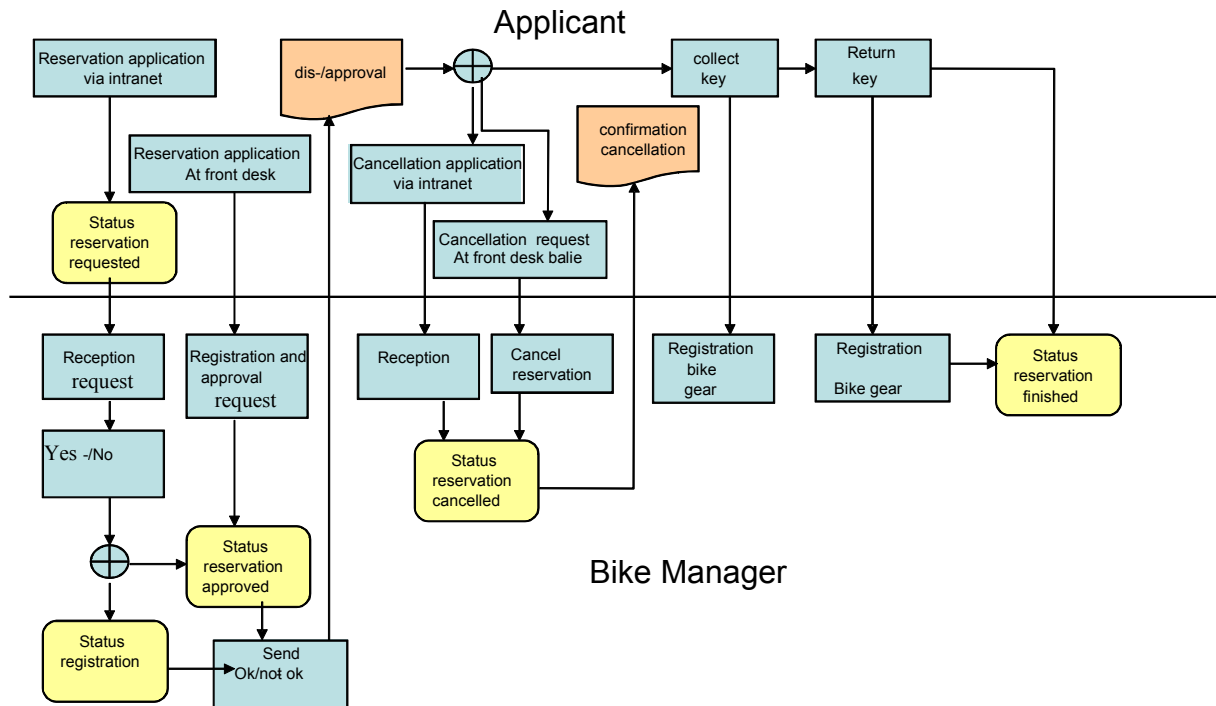
This is a non restrictive list of reports. Reports on the use of the pool cars will be used for evaluation purposes:

- To evaluate the actual needed number of cars per department/ service
- To determine which type of cars should be purchased in the future. Cars with low/ very low mileage can for example be replaced by extra (electric) bikes, electric cars or could simply be removed from the site
- If most rides are done by just one passenger and hardly any luggage we could consider buying smaller mini cars
- If departments only have occasional long distance destinations we can install a central pool with the necessary cars to provide for this occasional need

4.4.5.1. Process “Reservation of bike”

To encourage city employees to choose the bike more often, we have opted for a reservation system for pool bikes that is far simpler than the one for pool cars.

Process diagram



4.4.5.2. Description Activities

Activity	Description
Reservation via intranet	Applicant can make reservation for bike via intranet
Reservation via front desk	applicant asks front desk manager to make the reservation for him/ her
Registration request	applicant checks whether bike is available and will confirm reservation immediately if bike is available
Reception request	Front desk manager receives the request in the back office application
Dis-/ approving request	Front desk manager will evaluate, approve/ disapprove. The application will make it possible to make this automatic.
Send approval/ disapproval	Front desk manager sends confirmation to applicant with results evaluation
Cancellation request at front desk	Applicant can cancel application, on simple demand at desk. It will be possible to make this automatic in the system.
Cancel reservation	Front desk manager will cancel immediately in the application.
Collecting Key	Applicant collects key at desk at departure time reservation.
Registration bike gear	if applicant wants to use bike gear, this will be registered in the application
Return key	Applicant will return key after reservation
Registration return bike gear	Returned bike gear will be registered in the system
Registration error	If there is a technical problem with the bike, this will be reported and registered in the system by the front desk manager.
De-/ Activating bike	Problem bike will be de-activated in order to get the problem fixed. After repairs, the bike will be re-activated in the system.

4.4.5.3. Functional needs

Basic principles and data-authorisation of pool cars apply here as well. Bikes are linked to a service, a department or are at city level.

Idem pool cars

Data and field definitions

To stimulate biking we have deliberately chosen to keep this reservation mechanism as simple as possible. There are two possible scenarios:

1. The applicant registers a reservation through the intranet application (same as reservation cars). This is very handy when you absolutely want to be sure you can use a bike for a certain trip.
2. The front desk manager makes the reservation in the system at the moment of key collection. At a simple request at the front desk one can have sustainable transport at one's disposal

Step 1: Reservation registration

Scenario 1 – Reservation via the intranet

The applicant sees an electronic registration form which contains all data that needs to be filled in for the application. The form is similar to the one for the cars but much shorter and contains the following data:

- Name
- Departure location
- Departure date and hour
- Type of bike: male, female, electric,...
- Bike gear
- Return hour

After completing all data fields, the system will propose an available bike based on the following criteria:

- Availability
- Location
- Time buffer between two reservations

Scenario 2 – Reservation at the front desk

The front desk manager immediately sees an overview list of all the available bikes for that location in the graphical planning board. He/she selects a bike by a simple click and the reservation will be approved of at the same time so that the applicant can leave immediately.

Step 2: Managing the reservation (cancellations, changing status, changing data)

Scenario 1 – Managing the reservation through the application

The user will be able to access all his/ her reservations with status “approved”. By a simple click on the reservation number the whole reservation can be consulted.

Scenario 2 – Reservation via front desk

The front desk manager can manage the reservations in the system by clicking on the reservation at the graphical planning board. Managers can then perform the following actions:

1. Cancelling the reservation
2. Changing status
3. Changing data

5. Report on eco-driving

5.1. Description of the selected procedure

The learning process was planned to start by the end of January 2011 and was originally planned for approximately 60 students. Due to unforeseen circumstances (sick leave, changes in functions and roles,...) the group was reduced to 54 students. For the organisation of the project we have chosen the company DRIVOLUTION.

Out of about 5,000 employees, we have selected a number of people based on the frequency of their car use (number of visits to gas stations, drivers database in the departments themselves,...). We have tried only to select those who drive the same car for 95% of time and those who usually do not share their car with other people.

To save on working hours spent on the eco driving lessons we have chosen a combination of E-learning and only one hour of practice with an instructor. The eco driving lessons themselves will take place in a one-on-one situation (teacher-student) to generate active group learning.

The advantage of this system is that we will not consume too many working hours so that normal work schedules will be little affected.

5.1.1. Timeline

Time frame	Description	Time needed for students (number of working hours to complete task)
week 1	installing D-Logger in cars	none
week 1 - week3	collecting data on driving behaviour on D-logger	none
week 4	unplug D-logger	none
week 4 and 5	E-learning	4 x 20 minutes (in a 10 day period) students are free to choose when
week 6	processing data	none
week 7 - week 8	Practical test with driving instructor	1 hour
week 9 - week 10	instructor sends students additional exercises (on pc) and reminders	depending on student
week 11	installing D-logger in cars	none
week 11 - week 14	collecting data on driving behaviour on D-logger	none
week 15	unplugging D-logger processing data	none
week 16	processing and evaluating all data	none

5.1.2. D-Logger

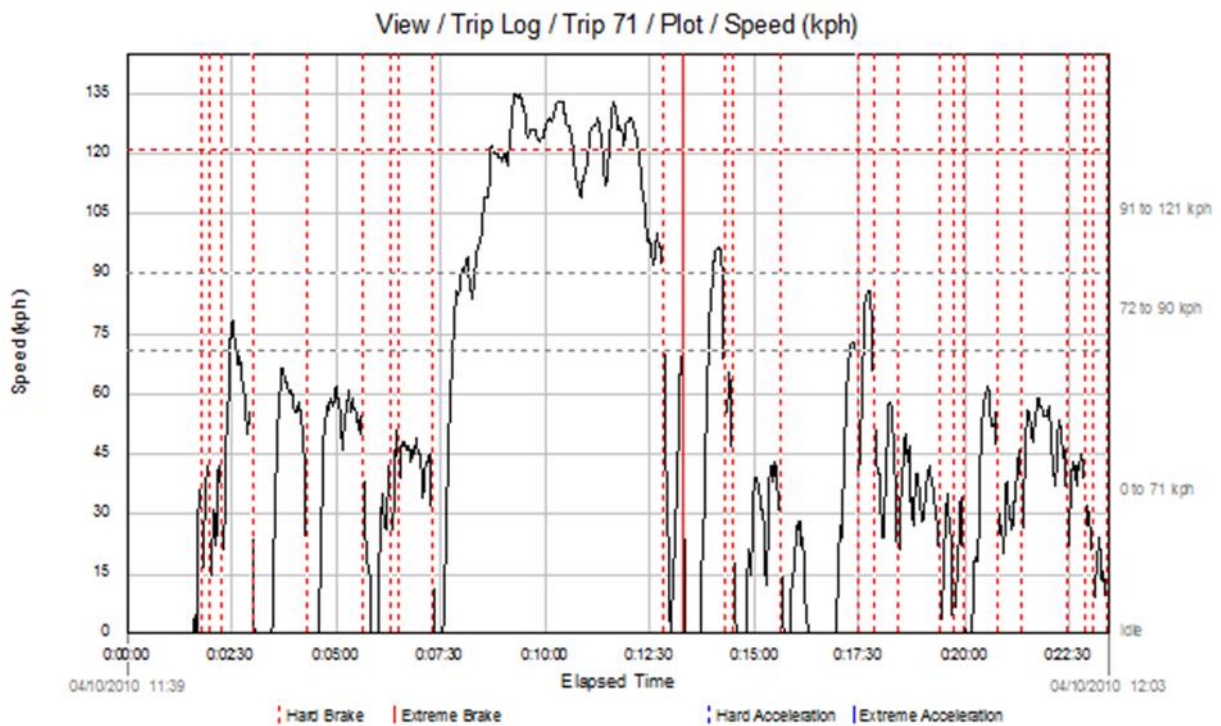
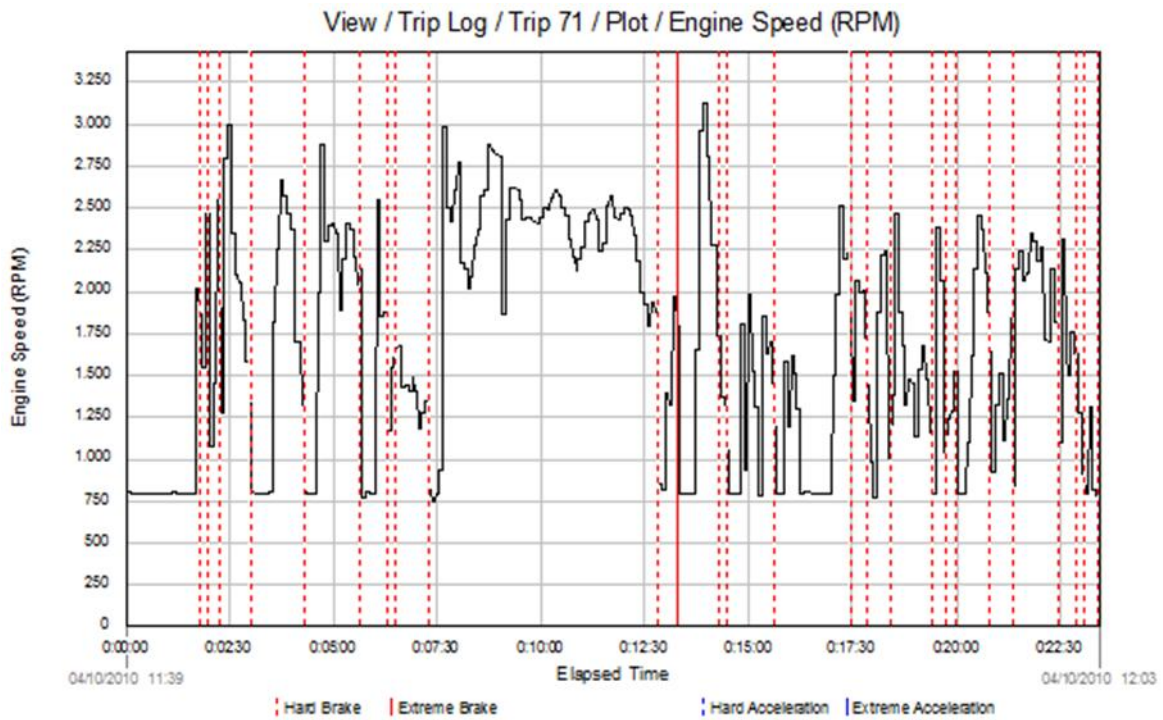
The system is based on digitally collecting data on driving behaviour through a device called D-LOGGER. The D-Logger is a device that can be used in all passenger vehicles to monitor the basic parameters of driving style. Drivers receive an objective view of their driving style. This enhances the learning effect. Every modern car has a diagnosis socket in which a D-Logger can be plugged in. This socket is situated within 50 centimeters of the steering wheel. The device is very compact (l:5,w:2,h:2) and does not cause any discomfort to the driver. Once the D-Logger is plugged in the driving data are being registered: speed, shifting behaviour, temperature motor, speed of rotation/ engine speed, brake- and acceleration behaviour.

The D-Logger **does not track the location** of the vehicle. However in February 2011 (Tuesday the 8th) we were contacted by the unions who represent our employees with a request to give more information about the D-log system used. They suspected it was a hidden form of GPS-tracking to locate cars and users at any time. For now, we have convinced them that it is part of a learning process, that we do not intend to track the location and that the D-log system does not track any of such information.

For data collecting, we also ask the participants to be extra careful to put in the correct mileage and vehicle code into the Q8 system. The Q8 fuel card system gives us a clear view on fuel use. The data from Q8 are then transported into the eco driving program by DRIVOLUTION.

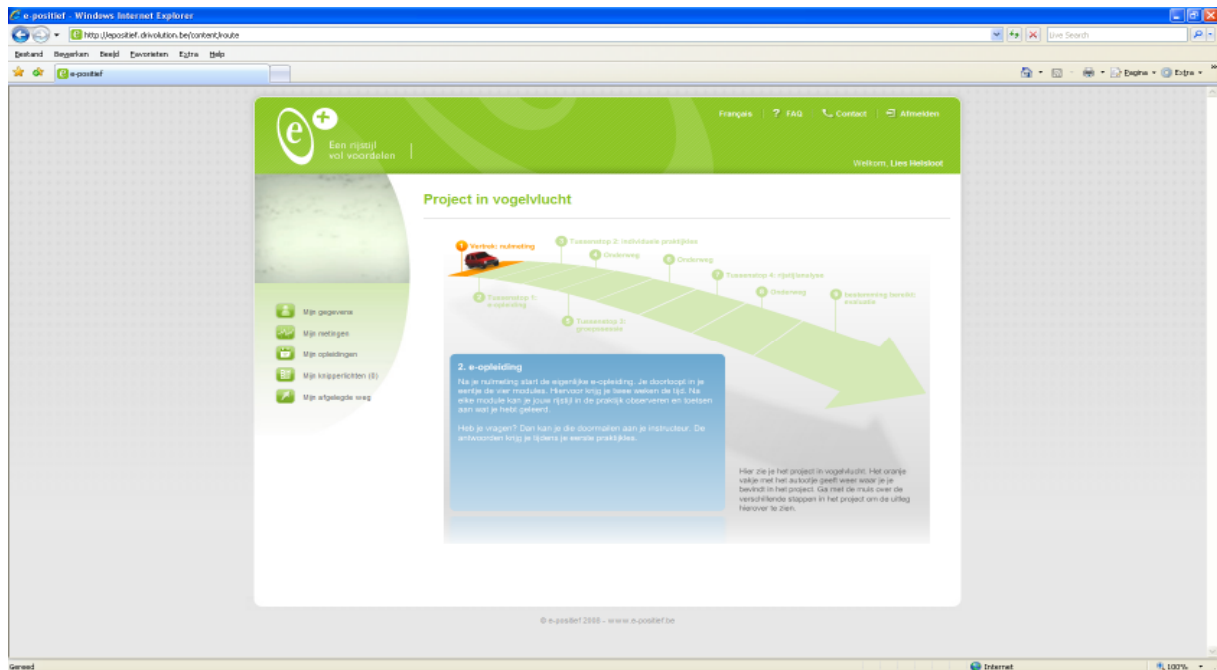


Figure: D-Logger



5.1.3. E-Learning

In the E-learning phase, students go through four sessions of 20 minutes E-learning. They go through a number of multiple choice exercises based on real situations that are being documented by photographs and video material. This prepares them for the practice session. The advantage of these theoretic exercises is that students can plan learning time themselves.



3. Schakelen bij lage toeren - Speel Hoger Lager

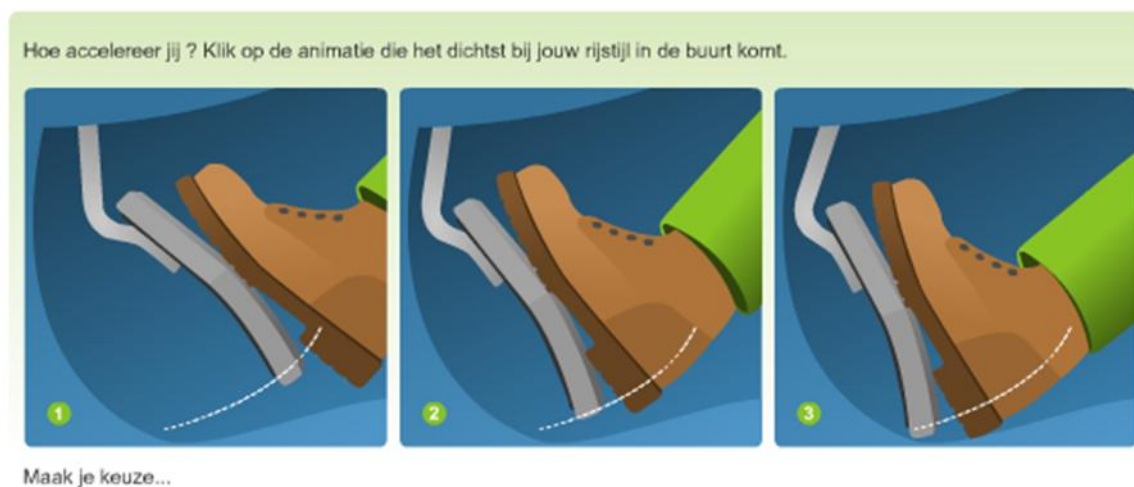
Correct!

Met een motor op benzine of LPG schakel je inderdaad best hoger bij 2500 toeren of minder. Als je sneller schakelt verbruik je minder brandstof en stoot je minder CO₂ uit. Bovendien maakt je motor veel minder geluid. Hierdoor rij je meer ontspannen en dus ook ... veiliger.

Tijdens je praktijktraining kijken we na of dit toerental ook voor jouw auto realistisch is. Bij sommige auto's kan je zelfs nóg vroeger opschakelen.

[GA VERDER](#)





5.1.4. Practice Session

After the E-learning period, students get a one-on-one training session with an instructor from DRIVOLUTION. The instructor will combine feedback on the D-Logger information and results from the E-learning exercises with instructions on the driving style.

Students will follow a previously mapped route. To keep the distance and time loss to and from the practice session as low as possible we have chosen four starting locations, each one as close as possible to the workplace of the student.

For the practice lesson two cars from the central garage will be used to be able to compare results between the students. These selected cars also have an on board computer which calculates the fuel use in real-time and can provide an average fuel use at the end of the ride.

5.2. Evaluation Eco-Driving

In June 2011 all results and findings from the Eco Driving will be processed and evaluated in close cooperation with the Site Evaluation Manager and the company DRIVOLUTION.

We will then be able to see what the impact was on:

- Driving behaviour of the students (they will be interviewed on their experience)
- Fuel use
- Accident numbers

6. APPENDIX - Amiens: minutes visit

Amiens – 15 November 2010

Studietrip – B30 biodiesel in professionele wagenvloeten

In kader van Civitas Elan project

Partners : Stad Gent, De Lijn, Ivago, De Post, UGent

Bezoek aan de openbare busmaatschappij en werkplaats van het wagenpark van Amiens
Metropole

Amiens Metropole

33 gemeenten, samen 180 000 inwoners

Verkregen : uitgebreide infomap over het wagenpark van busmaatschappij en metropool
Amiens

Infomap over productie van biodiesel 'Diester' in Frankrijk.

CFT openbare busmaatschappij

1992 : Stad schakelt over op B30 voor haar eigen wagenpark

1996 : Andere wagens van het wagenpark worden allemaal omgeschakeld op B30

2006 : Bij de hervorming van de openbare vervoersmaatschappij wordt van de gelegenheid
gebruik gemaakt om alle 140 bussen in één dag tijd over te schakelen op B30 diesel
brandstof

Vorbereiding : in het verleden is ook met andere biobrandstoffen en mengelingen van
dieselbrandstoffen geëxperimenteerd. Gezien echter de zeer goede ervaring van het gebruik
van B30 in het wagenpark van Amiens wordt beslist om ook de bussen enkel nog op B30 te
laten rijden.

Om alle mogelijke sporen van vorige brandstoffen als vervuiling te voorkomen, hebben alle
voertuigen eerst een week op gewone fossiele brandstof gereden.

De bestaande tankinstallatie met een tank van 50000 liter werd gereinigd en gevuld met B30.
Vanaf dit moment werd nog uitsluitend getankt met B30 biobrandstof. De omschakeling voor
alle voertuigen is dus van de ene op de andere dag gebeurd. In de periode voor de
omschakeling hebben alle voertuigen een groot onderhoud ondergaan, o.a. alle mazoutfilters
werden vernieuwd.

Er is sindsdien geen enkel defect aan de voertuigen vastgesteld : niet naar filters, motor,
reservoirs, leidingen.

Er zijn ook nooit problemen vastgesteld met de pompinstallatie en de stabiliteit van
biobrandstof. De huidige tankinstallatie van 50 000 liter van CFT is eigenlijk te klein want
max. na 3 dagen moet reeds worden bijgevuld, vaak zelfs dagelijks. Dus de adviesperiode
van een rotatie van 6 maanden wordt nooit gehaald. De stabiliteit van de biodiesel kan
ongeveer 1 jaar worden aangehouden, maar men adviseert bij het plaatsen van een
tankinstallatie, een hervul termijn van maximaal 6 maanden. Het tevens raadzaam om reeds
in het begin te voorzien in 'over'capaciteit, maar de tank slechts gedeeltelijk te vullen. Bij een
uitbreiding van de vloot kan dan gemakkelijk meer brandstof worden
afgenomen zonder extra investeringskosten te moeten doen om een te kleine installatie bij
aanvang te moeten aanpassen.

Onderhoudsplan van bussen bij CFT :

Er is een verplichte wettelijke technische keuring van alle bussen om de 6 maand

Dus is er iedere keer minstens een klein onderhoud.

Ieder jaar ondergaat elk voertuig een volledig onderhoud onafh. van het aantal km. En
worden dus alle filters en olie vervangen.

De nieuwe generatie bussen zijn van het type Citaro van Mercedes Benz. Voorwaarden van Mercedes : de installatie van een kit (500 Euro, voldoet dan aan B100 norm) en halvering van oliewisseling van 50 000 km naar 25 000 km.

De garage doet na elke oliewisseling een analyse van de olie, er is nooit enige anomalie vastgesteld.

Voor de oude voertuigen is er geen probleem voor garantie, want deze is reeds lang verlopen.

Voor de nieuwe bussen heeft men de voorwaarden van de constructeur (Mercedes) gevolgd, maar men kan zich de vraag stellen of dit hier wel nodig is, daar alle bussen toch jaarlijks een volledige onderhoudsbeurt krijgen.

Alle analyses wijzen erop dat men eigenlijk een normaal onderhoudsinterval van 50000 km zou kunnen respecteren.

Maar gezien het specifieke karakter van de stadsvloot en de busvloot, kiest men bewust voor een eigen onderhoudstrategie, van een kleine controle om de 6 maanden om te voldoen aan de technische controle en 1 groot onderhoud per jaar. De meeste wagens blijven trouwens onder de gehalveerde onderhoudsinterval van 25 000km.

De nieuwste bussen zijn uitgerust met de NOx filter via Adblue technologie, maar er is geen roetfilter gemonteerd, omdat o.a. door de nieuwste motortechnologie in deze nieuwe bussen ruim voldaan wordt aan de verplichte euro 5 norm en een roetfilter zich dus niet opdrong. Trouwens door de aanwezigheid van zuurstof in biodiesel (ca 11%) is de verbranding beter en is er een aanzienlijke daling van fijn stof en koolwaterstoffen. De mogelijk NOx wordt 'weggevangen' met Adblue technologie.

Winter : geen probleem, de koolzaad biodiesel is minstens gewaarborgd tot -15 °C. Ook in de strenge winter van afgelopen jaar is er nooit enig probleem geweest met de kwaliteit van de biodiesel.

Voorzorg bij oudere wagens : de rubberen leidingen nakijken, en nagaan of de oudere tankreservoirs geen naden in lood of zink bevatten, want dit metaal kan worden aangetast door biodiesel. Rond de tankdop kan gekozen worden voor een extra vernis laag, daar er een kans bestaat op aantasting van de verflaag. Toch zijn nog nooit problemen vastgesteld. Anekdote : in Angoulême werd na problemen met een bus (Euro 2norm) met meer dan 500 000 km op de teller, de volledige motor ontmanteld, de motor bleek uitzonderlijk proper te zijn, wat nog eens een bewijs is voor het reinigend en smerend effect van de biodiesel. Het verhoogt de soepele werking van de motor en voorkomt slijtage. Uit het onderzoek bleek dat zeker niet de biodiesel aan de oorzaak van de panne lag, maar het falen van een mechanisch onderdeel.

De heer Debeuf repliceert hierop dat andere dieselmotoren met hetzelfde aantal kilometers wellicht even proper zullen zijn.

Organisatie Diester

Deze organisatie staat in voor de promotie van de biodiesel B30 in Frankrijk gekend onder de naam Diester (30). Het is een ledenorganisatie.

De service voor de leden bestaat in het begeleiden van de invoer van B30 in het wagenpark, het helpen bij vragen, informatie- en bewustwordingscampagnes naar het grote publiek, lobbywerk naar het beleid en de constructeurs over het gebruik van B30. 3

Een speciale service bestaat erin dat de organisatie 'partenaire Diester' zelf de garantie van de voertuigen overneemt van de leden, zo overtuigt zijn ze van de kwaliteit van de B30 biodiesel. Er is een speciale procedure uitgewerkt waarbij in geval van een panne en de mogelijke oorzaak te wijten kan zijn aan het gebruik van B30 er twee onafhankelijk experts worden aangesteld, die samen met de expert van de constructeur de oorzaak van de panne onderzoeken. In geval van schade door het gebruik van B30 en de constructeur betwist de garantie, zal de verzekering van Diester de schade vergoeden. In de vijf gevallen die reeds behandeld zijn geweest, is steeds onomstotelijk vastgesteld door de commissie dat de schade NIET het gevolg was van B30.

Door de grote ervaring en het uitgebreid net van meer dan 8000 voertuigen in geheel Frankrijk die B30 gebruiken hebben ze steeds sterke argumenten bij de constructeurs die bij een aanbesteding voor waarden willen opleggen in gebruik van biobrandstof. Vaak is er weinig communicatie tussen de verschillende commerciële diensten van een constructeur en is er zelfs vaak een gebrek aan communicatie of beleid vanuit de hoofdzetel.

Bij een recente aanbesteding bleek MAN een goed aanbod voor de gemeente (niet nader vernoemd). Toen deze melde dat B30 als brandstof zou worden gebruikt, werd vanuit de plaatselijke commerciële dienst plots strengere voorwaarden opgelegd. De gemeente, lid van partenaire Diester, kon verwijzen naar het gebruik van MAN bussen op de pendeldienst tussen de luchthaven Ch. de Gaule en Parijs Centrum, waar geen voorwaarden bestonden en er zelfs door het moederhuis van MAN analyses werden uitgevoerd. Geconfronteerd met deze informatie, kon de gemeente de bestelling plaatsen zonder enige voorwaarde in het onderhoudscontract !!!!

Socio-ecologische context

Biobrandstoffen worden in de media vaak geassocieerd met milieuproblemen en sociale problemen, zoals ontbossing en hongersnood. De eerste generatie biobrandstoffen wordt in hoofdzaak gemaakt van voedingsgewassen. Biodiesel wordt geproduceerd op basis van plantaardige olie of dierlijk vet.

De B30 biodiesel die gebruikt wordt in Amiens wordt geleverd door Total, het betreft Total Ecolinium 30. De biodiesel voor bijmenging wordt door Total aangekocht bij de producenten die aangesloten zijn bij de organisatie Diester, vakorganisatie van Biodieselfabrikanten in Frankrijk.

De keuze van Amiens voor deze biodiesel steunt op het feit dat de productie gebaseerd is op koolzaad geteeld in Frankrijk en dus de landbouwsector ondersteunt. Van het productieareaal van 2,2 miljoen ha in koolzaad Frankrijk wordt er slechts 500 000 ha benut om te voldoen aan de vraag van de voedingsindustrie, de rest van de het koolzaad wordt hoofdzakelijk gebruikt voor biodiesel. Er is berekend dat men kan uitbreiden tot ongeveer een areaal van 3 miljoen ha in Frankrijk zonder ingrijpende veranderingen in het landbouwteeltregime. Belangrijk is tevens dat bij de productie van biodiesel er een eiwitrijke perskoek overblijft die kan worden aangewend in de veevoedingsindustrie en dus niet hoeft te worden ingevoerd.

Stadswagenpark Amiens Metropole

Een gelijklopend verhaal met de openbare busmaatschappij.

Eigen tankinstallatie en eigen onderhoudsservice

Idem als bij CFT, minimaal één groot onderhoud voor alle wagens. Het wagenpark is zeer divers in samenstelling van personenwagens van uiteenlopende merken (Citroën, Renault, Peugeot, Toyota,...) tot zware vrachtwagens en een uitgebreid park vuilniswagens.

De wagens worden onmiddellijk volgetankt met B30 bij de eerste ingebruikname.

Er is nooit enige anomalie vastgesteld bij eender welk voertuig dat te wijten zou zijn aan het gebruik van B30.

Prijzen per aanbesteding B30 biobrandstof ivg met fossiele diesel of winterdiesel :

B30 nov 2010 (ex BTW), incl taksen :

X 1000 liter per vracht (30 m³) : 1054,9 Euro B30

1043,8 Euro Diesel

1061,34 Euro Winter Diesel 4

Dus in de zomer ongeveer 1eurocent duurder, in de winter net omgekeerd B30

(gewaARBorgd tot -15) is goedkoper dan equivalent winterdiesel, dus op jaarbasis gelijke prijs als diesel.

Conclusie

Kortom conclusie van het bestuur van Amiens voor de keuze van B30 biodiesel :

- Gemakkelijk in gebruik, direct inpasbaar in de bestaande structuur;
- Vraagt geen omscholing van de arbeiders in de werkplaatsen;
- onderhoudsschema's konden gewoon worden aangehouden, 1x per jaar groot onderhoud, om de 6 maanden in functie van de technische controle klein onderhoud;
- Het is volledig omkeerbaar, indien geen B30 beschikbaar, gewone diesel kan gebruikt worden;
- Merkelijk properder motor, dus gaan langer mee, het materiaal gaat langer mee, dus op lange termijn, stuk goedkoper omdat het wagenpark over een langere termijn kan worden afgeschreven, dus minder investeringskosten in nieuw materiaal;
- Bijkomend ondersteuning van de landbouw in Frankrijk en EU door gebruik van koolzaad voor de productie;
- Bijkomend milieuvoordeel door de lagere uitstoot van CO, fijn stof en koolwaterstoffen;
- Bij de afgelopen staking in Frankrijk, geen bevoorradingsproblemen gehad met de levering van biobrandstof !

Amiens Metropole heeft verschillende opties bekeken, en bekijkt nog steeds diverse opties voor de aandrijving van haar stadsvloot. De optie GAS is zeer lang onderzocht maar uiteindelijk niet weerhouden en wel om de volgende reden :

- Gas scoort zeer goed op milieuvlak en Amiens ontkent niet dat de naakte cijfers voor de meeste waarden beter zijn voor gas dan voor biodiesel, alhoewel het rendement van een CNG-motor lager ligt dan bij een (bio)dieselmotor;
- Maar als men de volledige som maakte voor het budget van de stad bleek biodiesel naar economische en milieu score het beste compromis.
- De aanschaf van wagens op gas, zeker vrachtwagens en bussen is merkkelijk duurder dan gewone voertuigen. Een bus kost al snel 2X duurder
- Er is een zware investering nodig in aangepaste tankinfrastructuur, met geen duidelijk zicht op terugverdieneffect op lange termijn
- Er is een omscholing nodig van de arbeiders in de garage en een speciaal certificaat met nodige controles in de werkplaatsen om 'gasproof' te zijn
- Er is een 'anti-ontploffings'plan nodig

Op basis van de uitgebreide kosten batenanalyse heeft Amiens uiteindelijk besloten niet te investeren in gasaandrijving voor het wagenpark.

Aanvullingen

Uitgedeeld ter plaatse : powerpoint presentaties met uitgebreide info over de samenstelling van het wagenpark, de busmaatschappij en de eigenschappen van B30 biodiesel Diester.

Algemene vaststelling

- B30 biodiesel is zeker een goede optie bij wagenvloot met onderhoud in eigenbeheer en een eigen tankinstallatie

Onderhoud : Bij beheer onder contract moet onderhandeld worden mbt tot de onderhoudsintervallen : Het komt er op aan de constructeur aan te tonen dat de 'voorzorg' tot halvering bij het gebruik van B30 eigenlijk niet aangewezen is en dat er voorbeelden bestaan in de praktijk (RATP in Parijs)
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Tanken : wettelijke barrière in België om Biodiesel met een hogere menging 7% aan te bieden in het openbare tankstations. B30 Kan enkel na goedkeuring en erkenning in een gesloten netwerk tussen de vastgelegde partners.

Aanwezige partners :

Stad Gent : Lies Helsloot, Sophie Gillaerts, Annemie De Tremerie (verontschuldigd)

Bpost : Christian Berqué

De Lijn : Patrick Debeuf

UGent : Tom Anthonis

Ivago : Paul Dobbelaere (verontschuldigd)

EBB : Jacques Hots 6