Design and building of demonstrators

Deliverable 3.1

Interim report
Index

1. **Introduction** ................................................................. pg.2

2. **PART A: General Overview of the project** .......................... pg.3
   2.1 **Partners involved in WP3** ......................................... pg.4
      2.1.1 CAMBIO .............................................................. pg.9
      2.1.2 BREMEN ............................................................ pg.19
      2.1.3 LONDON .......................................................... pg.28
      2.1.4 PALERMO ........................................................ pg.40
      2.1.5 TURIN ............................................................. pg.44
      2.1.6 GENOA ............................................................ pg.50
      2.1.7 WALLONIA ...................................................... pg.52
      2.1.8 STOCKHOLM .................................................... pg.59

3 **PART B: Specific Issue on Deliverable 3.1** .......................... pg.62
   3.1 **Methodology** ........................................................ pg.63
   3.2 **Partners’ Contribution** ............................................. pg.64
      3.2.1 Bremen-Cambio ................................................ pg.64
      3.2.2 London-Urbigo ................................................. pg.76
      3.2.3 Stockholm ....................................................... pg.80
      3.2.4 Turin ............................................................ pg.88
      3.2.5 Genoa-Tecmav ................................................ pg.102

Annex I: Genoa-Tecmav Contribution
1. Introduction

WP 3 (Design and Building of Demonstrators) is a core element of the MOSES project. In this WP, all technical and organisational development and improvement are designed, evaluated and prepared for demonstration.

The use of new technologies is seen as a pre-condition to meet the user-needs, analysed in WP2, and to further develop and expand Car-Sharing. Also intermodal co-operations will become easier (e.g. through Information and Communications Technologies) For further technological development and the organisational evolution various elements will be the focus of WP 3:

- Telematics Application (as common smart-card application with other mobility operators)
- Information Systems
- Fleet Management Systems
- Alternatively Powered Vehicles
- Automatic Impact Assessment
- Software development for Internet Booking, for use of WAP (Wireless-Application-Protocol), for instant access, for integrated information systems at Intermodal Mobility Stations
- Software for alternatively powered vehicles (as they have certain specific requirement in terms of range, recharging periods etc.)
- Open Booking systems
- Joint services with other Mobility operators (e.g. Public transport, taxi, car-rental, delivery services etc.)

This work package includes all tasks for developing Car-Sharing to a higher level of technology applications and towards new service modules.

The task of WP3 will be the evaluation of these different technological options for the benefits for Car-Sharing operations, designed and evaluated for application
within Car-Sharing and intermodal chains (e.g. common smart-card-standard, integrated trip-planner etc.) or within fleet-management (e.g. foe accounting, specific booking system for alternative fuelled vehicles with certain operational limitation etc.) The whole process will be in real-life with real end-users (citizens, travellers, political structure etc.)

It means that WP3 describes the mainly organisational but also technical background for car-Sharing applications.

2. **PART A: General Overview of the project**

The contributions to WP3 are different depending on the partner, its skill and the site’s experience about CS. In fact the partners involved in WP3 are at a different progress status about the implementation of CS systems: starting from the sites where CS has a consolidated tradition (i.e. Bremen, London and Stockholm) to the ones where CS is starting (i.e. Wallonia and Turin) to the ones where it is at various stages of the design process (i.e. Genoa and Palermo)

The partners skills are very different, widening from public administrations more involved in the definition of the framework conditions with the political and organisational aspects, to private companies dealing with technological options related to the hardware and software implementations. The different skills and needs make the different partners of the consortium quite self-standing in development of their own projects.

In the following paragraphs is described general overview of the state of project of the partners involved in WP3.
2.1 Partners involved in WP3

In this paragraph a concise description of the specific task of each partner involved in WP3 is shown.

The partners involved in WP3 are:
• CAMBIO - Main Demonstrator BREMEN
• BREMEN
• BSAG
• SUTTON - Main Demonstrator LONDON
• SOUTHWARK
• SEA
• PALERMO - Main Demonstrator ITALIA
• TURIN
• GENOA
• WALLONIA - Main Demonstrator WALLONIA
• TAXI STOP
• MFO - Main Demonstrator STOCKOLM
• STOCKHOLM

The work developed in WP3 could be divided into three main areas:

1) General context:
- Analysis of the transport demand for a Car-Sharing system;
- Identification of the price policies for the Car-Sharing system (Bonus and incentives) and for different urban transport modes with the aim of moving the transport demand among different transport modes;
- Inter-modal co-operation with railways, public transport, taxi or other;
- Legal structure;
- Information, advertisements for the Car-Sharing service.
2) Technologies:
- Transport smart-card with personal ID, common within different modes
- Data transmission and accounting
- Booking: Open-end reservation (return of the key)
- Instant access (online booking system with reservation by WAP, web server)
- Mobile reservation (mobile access to the reservation system with WAP, SMS, UMTS, GPRS)

3) Management of the Car-Sharing business:
- Service/fleet management
- Last-minute reservations (incentive and management)
- Communication with the vehicles via short-range radio and/or GSM
- Statistics and following-up system

The allocation of the work among the different partners is the following:

Main Demonstrator Cambio – Bremen
- Design, evaluation, building of automatic information centre;
- Evaluation and improvement of integrated trip-planner (together with public transport, taxi and geographical information);
- Design, evaluation of on-line booking software and system;
- Evaluation and improvement of integrated smart-card;
- Automatic data transmission and accounting.

Cambio
Task:
- Technologies
  - “Open end” reservation
- Instant access
- Mobile reservation
- Multilingual re-engineering of the software system

○ Management of Car-Sharing business
  - Quality management system
  - System contract as legal structure

City of Bremen

Task:

○ General context
  - set the framework
  - support the co-operation of the various actors
  - use its role in terms of awareness, political backing.

Main Demonstrator London
- Subcontracting the design, evaluation and development of Car-Sharing system, integration of advanced technologies
- Setting framework conditions

Main Demonstrator Italy
- Setting the framework (general scheme of pricing for urban mobility to improve the use of “sustainable mobility modes”) (Genoa).
- Integration of car sharing technologies into an integrated traffic control systems (real time information dispatching and route guidance) (Turin).
Integration of different vehicles technologies within a unitary car sharing system and start up of the system (Palermo).

City of Genoa

Task:
General context
- Analysis of the transport demand in Genoa
- Analysis of the current prices of different the transport modes used in the urban area.

Management of the Car-Sharing business
- Scheme of pricing for the Car-Sharing system to promote the new Car-Sharing service
- General scheme of pricing for urban mobility to improve the use of “sustainable mobility modes”, according to specific political issues.

Main Demonstrator Wallonia
- Subcontracting the design, evaluation and development of Car-Sharing system, integration of advanced technologies
- Setting framework conditions

City of Stockholm
Task:
- Technologies
  - Transport smart card with personal ID
  - Booking system
  - Web server
  - Communication server
- General context
  - Cooperation with taxi and public transport for smart card adoption
  - Legal aspect
  - Set up of Car-Sharing stations
After this schematic description, this paragraph will show the main objectives/task already reached from every partner, those in progress with an estimation of the necessary working requested, the obstacles and problems encountered, in order to get for every single experience useful elements to facilitate the evaluation of different options for improving the service to be offered.

With a general description of each partner’s work, this first part will be focused on some specific and detailed aspects such as:

- Preliminary measure: regarding market survey and initial marketing activities done, information about operator, eventual cooperation involved in the project;
- Site Specifics, which describes specific characteristic that might have an impact on the way to implement the car sharing in own city;
- Description of Software, its functions and eventual specific problems;
- Reservation, with description of the specific methodologies used, and eventual problems encountered;
- System service with information regarding product, general condition, tariff, fleet composition, membership to associations, administrative procedure and staff matter, marketing;
- Backoffice regarding billing and invoicing, finance and controlling, support at fleet management;
- Service on demand about mailing of bills, staff accounting staff training, general customer service.
2.1.1 CAMBIO

An overview of Cambio work is reported:

<table>
<thead>
<tr>
<th>Cambio’s projects</th>
<th>start of the projects</th>
<th>estimated end of the projects</th>
<th>to-do-lists / comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>open end reservation (= reservation without predicted time of return)</td>
<td>August 2001</td>
<td>March 2002</td>
<td>defining the new reservation product „open end“; amongst other things: interviews with clients who will use this new booking modality developing a new reservation software, which allows open end reservations and deals automatically with the logical impacts of this on any other reservation: • automatic information about the return of the key • creating a warning system on data transmission faults (we don’t expect the car back) creating an economic balance for the blocked car time</td>
</tr>
<tr>
<td>instant access (= reservation for the starting time „NOW“)</td>
<td>August 2001</td>
<td>March 2002</td>
<td>defining the new reservation product „instant access“; amongst other things: interviews with clients who will use this new booking modality realizing an optimized online booking from the location on the reservation system • rising speed of reservation data transmission • developing a mobile access to reservation by WAP • optimizing the availability for „last minute“ reservations creating an economic incentive for clients to use „last minute“ reservations</td>
</tr>
<tr>
<td>Cambio’s projects</td>
<td>start of the projects</td>
<td>Estimated end of the projects</td>
<td>to-do-list / comments</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----------------------</td>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>mobile reservation (WAP): prestudy</td>
<td>January 2002</td>
<td>May 2002</td>
<td>researching which mobile access to the reservation system should be used: WAP, UMTS, GPRS, SMS potential use of reservation by WAP:</td>
</tr>
<tr>
<td>mobile reservation (WAP): implementation</td>
<td>June 2002</td>
<td>December 2002</td>
<td>use as standard reservation via mobile phone and www for clients use as mobile to-do-lists for service staff</td>
</tr>
<tr>
<td>quality management system</td>
<td>May 2001</td>
<td>December 2002</td>
<td>developing a process based online-manual for CarSharing staff, writing down and defining the operative information for the manual creating links between manual and software translating the manual without redesign of the processes</td>
</tr>
<tr>
<td>multilingual reengineering of the software system</td>
<td>May 2001</td>
<td>December 2002</td>
<td>applications draw the language from context-defined resource databases (in client’s, staff’s or operator’s language choice):</td>
</tr>
<tr>
<td>system contract as legal structure</td>
<td>August 2001</td>
<td>March 2002</td>
<td>identifying and describing the CarSharing service components: software services reservation services system services (how-to-do) branding &amp; marketing backoffice services additional services on demand developing service component-packages for different levels of service identifying duties of the service-provider identifying rights of the service-provider in product standardization and definition protecting intellectual property rights creating a pricing system for the different service component-packages</td>
</tr>
</tbody>
</table>
There are very well working co-operations with the public transport companies in all cambio-cities.

**Aachen**

Long tradition of co-operation with local pt company ASEAG and regional pt endowment AVV.

General product: „Kombi-Rabatt“. Combined discount for all subscribed customers of ASEAG: 100% discount on Car-Sharing entrance fee in any tariff. Students receive 50% reduction in the framework of their term ticket. Turnover loss from not being paid entrance fees is compensated 50% by ASEAG (or AVV).

- Distribution of mutual campaign leaflets in display-baskets in busses.
- Sometimes: free poster display in so called „city-lights“ (Deceaux) of bus stops.

Recent promotion „Einer passt immer“: Three monthly test-offer with 15% discount on pt month-ticket plus 100% discount on Car-Sharing entrance fee plus 10% discount on usage fees (rides). Promotion made for different target groups (pt customers, cs customers and residents of selected quarters). Valid until end of March 2002. Entirely varnished bus for campaign-advertising.

**Bielefeld**

Since September 2001, cambio Bielefeld and the customer’s office of the local pt-company „moBiel“ are located under one roof. Car-Sharing Information and contracting is carried out by „moBiel“ staff members for free !!!

General product: „AutomoBiel“ 33% discount on entrance fee and no monthly fee within Start tariff for subscribed customers of pt-company „moBiel“ and students with term ticket.

General marketing support: free distribution of cambio-leaflets in display-baskets in busses.
Bremen
More than 9 years of co-operation also within several EU projects (Intercept, Zeus, Moses, Vivaldi).

General product: "Bremer Karte plus AutoCard" – 100 % reduction on entrance fee and monthly fee. Annual fee of 30€. This offer was awarded with the first price within the national contest "Königliche Verhältnisse in Bus und Bahn” (royal conditions in public transport) by the German traffic club VCD.

General support:
- fee 24h info line
- free forwarding of information leaflets by BSAG info line staff
- free contracting carried out by BSAG staff members in several points of sale
- free distribution of AutoCard-leaflets in display-baskets in busses
- free advertising on entirely painted tram
- free parking lots at 4 tram terminals
- free link from BSAG website to cambio homepage

Incentive for BSAG staff members: even more reduction on AutoCard.

Within the framework of the EU CIVITAS-project “Vivaldi”, the entire co-operation between BSAG and cambio is currently being improved in order to develop standardised co-operation product to be applied in all cambio-cities.

Cologne
General product: „Clever mobil“ 50% reduction on entrance fee and monthly fee.

Saarbrücken
General product: „Kombi-Rabatt“. Combined discount for all new subscribed customers of „Saarbahn plus Bus“: 100% discount on Car-Sharing entrance fee in any tariff. Students receive 50% reduction in the framework of their term ticket. Turnover loss from not being paid entrance fees is compensated 50% by ”Saarbahn plus Bus”.
Initial marketing support of € 12,500 for product launching in 2000.

**Marketing**

Since car-sharing is not too well known to the broad public even in urban centres, effective marketing is needed to stimulate the demand. For the success of car-sharing a good marketing is of key importance.

**Strategy**

A good marketing strategy does not start with the concept of the information leaflet. First of all, some very basic pillars of the company’s philosophy need to be defined: the aims, the styles and principles of the company. Of course, for these no general suggestions can be given here.

After having established this philosophy, the search for the appropriate name of the company and its product may start, followed by legal registration and trademark protection. Moreover, web domain registration should be carried out on time.

A market analysis, stating the target market and the prospective need, is another important step to be taken.

**Tasks and Tools**

**Fundraising**

The initial marketing task will not focus on the car-sharing customer but on prospective supporters or shareholders.

For the attraction of shareholders and public subsidies it is indispensable to produce a convincing business plan and to present it in a business plan leaflet, stating not only economic data for the next three or four years but also information on the market framework and the product itself.

**Public Relations**

Press and the media are very fond of car-sharing. More than ten years after its start, car-sharing still seems to be a topic worth being reported upon. And in fact car-sharing companies do lots of PR-work as the costs are quite low and the effect of reports in local newspapers, on radio or TV stations is very high.
For the inauguration of the car-sharing scheme it is recommendable to raise the public’s awareness by launching articles some months earlier. A subscription offer might for example be a topic the press regards worthwhile reporting on (e.g. a ‘reduced subscription rate within the first weeks or month’ or “subscribe now - and pay no entrance fee later”)

An opening press conference should take place the same day as the launch of the car-sharing operation or a few days before. Local and national press and media should be invited as well as local VIPs. This requires the fixing of a press index (press, radio, TV) and a VIP index. A press invitation should then be forwarded. At the press conference the journalists should receive a press release together with a press file containing additional PR and information material.

Once the business is running, many occasions can be used for new press releases: the opening of a new location, the extension of the service to a new city; the first 100, 500 or 1.000 customers; new service offers or products or new co-operations.

Advertising

Classical advertising is quite expensive and for car-sharing at least it has not proven to be a very successful PR means. Therefore, it is often limited to small advertisements in relevant journals.

Posters and stickers on busses or trams are far more effective and less expensive within marketing co-operations. If the co-operation with the local public transport company is very productive, even a whole bus or tram can be used as advertising medium.

Advertising in cinemas is even more expensive and the direct effects are rather poor.

Leaflets

Information leaflets are one basic PR medium applied by car-sharing companies. The leaflet should contain detailed information on:

- How the car-sharing system works
- Available cars
- Locations
**Tariffs**

The distribution should be organised in a permanent way at defined spots (e.g. shops, pubs, universities, business complexes). The involvement of a professional distributor (e.g. bicycle courier) is recommended.

Besides, an event-driven distribution should take place whenever this makes sense, e.g. distribution in a specific quarter of town at the occasion of the inauguration of a new location there.

Of course, the leaflets also serve as information material on demand (by phone-call, web, fax or regular mail).

**Cars and Locations**

The car-sharing locations themselves are very important PR tools. It is strongly recommended to install eye-catching signs or even information boards and leaflets.

In addition, the cars may also carry banners or the company’s logo. However, most car-sharing customers do not like to act as a promoter for car-sharing when driving. For this reason most bigger car-sharing suppliers limit their advertisement on the cars to very decent mentioning of the product name on the car.

**Customer Information**

Lots of marketing work is done through direct contact with prospective customers. The local office or point of sale should therefore offer customer-friendly business hours. To provide good information services when people are calling should be regarded as an important marketing task. Offering information evenings can also be a good method to convince prospective customers.

Marketing materials for this direct customer contact are: information leaflets, customer manuals (stating all necessary information on cars, locations, reservation, usage, tariffs, business conditions etc.), ordering forms, company headed paper and visiting cards.

**Field service**

The classical field service is indispensable to attract companies and administrations as customers. It should be prepared by establishing a database, followed by initial telephone calls in order to fix an at-the-face-date.
In addition to the marketing materials outlined above, a special leaflet for business use is recommended.

**Customer Relationships**

The bigger a car-sharing company, the more important the car-sharing service itself becomes for PR. Materials to support this are: Customer journal, customer manual, smart cards, driving reports and other office material. Of course, also the company’s website is of great importance.

Customer surveys from cambio have revealed that first-hand information from satisfied car-sharing customers was the main reason for new comers to join car-sharing.

Improving the service is not only an investment in customer relationships, but also the most important way to attract new car-sharing users.

There is no still reservation of parking lots on legally dedicated public ground foreseen in German traffic code. Cf. State-of-the-art-report ch. 2.5.

Short comment on current situation in electronic data processing communication between Belgium an cambio headquarters: They had to move the CUCM SMS data emission software back to Germany, since it was impossible to carry out troubleshooting tasks on the Belgian server due to the Taxstop network firewall. They decided to install the CUCM server in Cologne (not in Bremen!) in order to prove the system's performance in remote conditions.

Moreover, cambio Belgium can now apply the customer's and fleet management software Pfaust97 remotely from Belgium, having the respective database still on the Bremen server. (for further details see report of our Taxistop colleagues)

System contracts have been signed by CarSharing companies in Kiel, Lübeck, Göttingen, Münster and Hagen

**Software**

"Specification of "Open End"" and "Instant Access"" are completed. Orders for technical implementation are given to subcontractor Stoll IS.

Detailed Information:
From our new system-services customer ""Grünes Auto Göttingen"" they could draw interesting experiences with ""real life Open End and Instant Access"". In fact, this company allows its corporate members to go and get a car without preliminary reservation (""Instant access"")) and to return it by the time desired (""Open End""). This service is offered exclusively at one big location and the customer's satisfaction is very high. By means of an especially designed evaluation tool from cambio, they could analyse, that most of these reservations do not last longer than three days. These experiences led cambio to the following conclusions for the design of its new Open End reservation:

- Open End reservation is highly requested by corporate customers. The fact that in former user needs polls, the existing cambio customers in majority did not require this feature is possibly due to the fact, that customers which would be interested in such a service simply do not belong to the cambio members yet.

- Our former decision (based on the feedback collected by our customer's round tables) to offer this service as a mere ""Soft End"" reservation has been revised.

- Instead, they designed a software solution, that expects an ""Open Reservation"" to last not longer than a certain period of time and therefore allows later reservations for the same to be carried out all same. The clue consists in an additional buffer time. If the electronic locker does not announce the return of the respective car until the beginning of the buffer time, the reservation will be automatically extended. If another, later reservation from another customer is affected by this extension, his reservation will automatically switched over to another car of the same type. This customer won't even notice this shifting, since by the time of his reservation call, he was just told, which type of car at which location he has booked, but not which ""physical"" car. Of course, this service may only be offered at bigger locations, combined with ""automatic reservation clustering"" at an electronic locker (this improvement is currently supplied exclusively by our Cologne branch company).

They expect our technical subcontractor ""Stoll IS"" to implement this new software module until the end of year 2002. A market introduction of this product however will not be launched before the midst of 2003, since this service requires the modification of the locker software by our supplier INVERS in favour of a ""self announcing key return"" (see cambio progress report for ESG4). The order for this modification has been given in the meantime but experience
shows, that lots of smaller and bigger problems will probably arise, once the technology is introduced into the running business.

N.B.""Instant Access"" is already implemented by cambio, since it is possible to call the reservation service directly from our locations by a simple push on button of the electronic lockers."

**Reservation**

WAP reservation will be implemented by end of November. Based on the results of the technical study from our subcontractor ""Ravenworks"", the design of the WAP product will be as follows:

- Customer reservations will be carried out by WAP, since this protocol is the most ubiquitous one and it provides reasonable on line durations.

- Also the interactive fleet staff tasks will be communicated by WAP (not UMTS) but exclusively with JAVA compatible cell phones. Eventually palm tops will be used instead of cellulars.

  Their recent customer's on line inquiry showed, that just a minority (205 of 515 answered questionnaires) would wish to carry out reservations by WAP. Unfortunately, only 80 out of these 205 customers had any experiences with WAP. Quite some training services have to be provided therefore. Detailed information on ""how to WAP"" will be worked out exclusively for 4 types of cell phones."

**System service**

**Manual**

Currently, meticulously detailed information is available on the following topics: Introduction (how to use the manual), Use of software applications (bookkeeping software, virtual private network, net meeting, PGP, CAReWare-access-manager, CAReWare fleet management, Java-runtime environment, working-time registration), Locations and cars (installing of on-board computers and electronic lockers, information transfer on new locations within the cambio InfoSys), Fleet management, Customer Care (complete billing process, handling of ecs-reservation / cross-use, answering frequently asked questions), Reservation service (currently under construction), Manual-Edition (complete schooling material and workflow on how to get information into the on-line manual).
2.1.2 BREMEN

The main Bremen contribution has been sent already by StadtAuto Bremen / cambio. As Bremen is the reference site in the Moses project, here are some experiences which may be interesting for the entire Moses project. This contribution describes the point of view of the City of Bremen. The operator in Bremen is StadtAuto, an independent and market-based company. It is part of the cambio organisation (With branches in Bremen, Cologne, Aachen, Saarbruecken and since a short time also in Bielefeld).

But the City of Bremen has the role to set the framework (as far as it is in the responsibility of the communal level) and to support the co-operation of the various actors (like Public Transport operators, taxi, developers,...) and also to use its own role in terms of awareness, political backing etc.

The City of Bremen sees the very positive impacts of Car-Sharing for the urban environment, especially in the fields of
- replacing private cars
- reducing the mileage driven
- smaller and better cars in use (in comparison to the private fleet).

These impacts are proved through surveys – which show similar results in Bremen, in Munich, in Switzerland and other places.

Replacing private cars

Here Car-Sharing has very crucial role for any strategy of sustainable development. The problem of lack of public space is a problem of all cities. The contribution to solving the space problem can not be underestimated.

In order to achieve these targets, it is important to see what the conditions form the viewpoint of users are (user-needs). For example, we want to replace as many as possible private cars. So we need to have cars which fulfil all usual requirement of the customer (in comparison or even in competition to the private car). The available vehicles have to be as good as the private car in terms of performance, range, trunk capacity, seat capacity etc. That can be fulfilled by having a mixed fleet of smaller and medium class (and maybe even some larger) cars. Offering only
vehicles with unusual performance, limited seat/trunk capacity or very limited range is seen as potential problem. The Bremen experience shows that even the ZEUS bifueled CNG have not been well accepted by the Car-Sharing customers. The limited trunk capacity (in conjunction with many technical problems) has been a problem.

It seems that the fleet structure is quite important if we want to achieve a real replacement of privately owned cars.

**Reducing the mileage driven**

The tariff structure gives incentives to drive less car. Whereas the private car owner has high basic costs (purchase / depreciation, insurance, tax, garage etc.) and sees only low running costs (usually for fuel only), the Car-Sharer has low basic costs (low initial fee plus low monthly fees – in order to have a low threshold for membership / customer) but higher time / mileage related fees. The result is a more rational use of cars.

In addition the smaller cars are less expensive than the larger ones – so every customer can save money in using smaller (less space and energy consuming) cars. There is no free mileage!

**Smaller and better cars in use (in comparison to the private fleet)**

The Car-Sharing cars have to be state-of-the-art in terms of noise, exhaust and other environmental qualities. But the major environmental impact results from the change of travel behaviour. The reduction of emission through better cars (in comparison to the average of the private car fleet) is an additional effect. As pure “environmental vehicles” may counteract the interest in Car-Sharing for the broad market, these vehicles should only be a (smaller) part of the fleet - as long as limited range, poor refuelling infrastructure etc. reduces too much the value for the customer.

The mix of the fleet and the tariff structure seems to be of high importance for achieving the desired impacts for the urban environment.

For the *City of Bremen* some following points are quite important:

1. **Positive impacts on the urban environment through quality standards for CS:**

   In order to ensure these positive results and to avoid a watering of the principles of Car-Sharing, Bremen took the initiative to the German Conference of the Ministers of the Environment (representing all 16 states plus the Federal level) to set standards of certification
through the well-known official German Eco-Label “Blue Environmental Angel” (Umweltzeichen Blauer Umweltengel). After some discussions with operators, municipalities, with research institutes and legal surveys, the certification standards have been set in autumn 1999.

The standards define operators which may be specifically supported through public actions. This is important as there is no legal definition of the term ‘Car-Sharing’ in Germany. One specific objective is to set the framework for Car-Sharing locations on legally dedicated public ground – which is under the current legal framework not yet possible. But the certification allows to overcome the problem of defining and legally proving environmentally friendly Car-Sharing as being of public interest.

Additionally the eco-label is useful for the marketing of CS.

1. Co-operation with Public Transport and other mobility providers

The co-operation of Public Transport and Car-Sharing has been started within the ZEUS project. In 1998 the ‘Bremer Karte plus AutoCard’ was launched.

The smart-card as electronic car-key (tested and introduced in the ZEUS project) was a technical pre-condition for an offer, which allows access for a broad market and requires no deposit of the customer. The technical background gives higher reliability for the entire system and for all customers as (inadvertent or planned) misuse is excluded.

The (INVERS) smart-card system is used not only in Bremen but in all cambio cities in Germany (Bremen, Cologne, Aachen, Saarbruecken, Bielefeld) and in the Dutch AutoDate system and will also be used in the Moses partner cities in Belgium.

Up from December 2001 the German Railways will offer also Car-Sharing as supplement for their customers (DB Car-Sharing). This will be carried out in most places in co-operation with local Car-Sharing operators.

The system will offer one interface to the customer, which will be the smart-card access (as it is in use in Bremen).

For the Municipality it is important to have one interface for the customers, even if several operators may be behind it. The benefit will be for the customers – and so for the city as a whole.
It may be the role of the municipality to bring the actors of public transport and Car-Sharing together. Common offers, but also common information could be of high importance to achieve a good quality for the customer.

The Bremen Public transport trip-planner was improved through the INTERCEPT project and has the Car-Sharing locations as Points of Interest (POI) available (see also www.Intercept-Bremen.de). Also the Internet based booking webportal of the Car-Sharing operator (see www.cambiocar.com) has the direct link to the trip-planner.

An important point seems to be the option of common marketing. The right target group of potential clients for Car-Sharing is already in the vehicles and waiting at stops. Here advertisement can be quite fruitful and efficient.

2. **Co-operation with other actors and stakeholders**

In order to achieve good growth rates of Car-Sharing, also developers, shopkeepers etc. should be informed about the advantages of the system for their interest. A reduction of parking facilities can save many costs, if the developers co-operates with the Car-Sharing operator. (this will be further developed in Moses WP 5)

For shopkeepers there is an interest as car-sharers will do more shopping in the city (centre and local neighbourhoods) as result of their more rational mobility. Shopkeepers can support Car-Sharing through marketing (posters in their shops etc.) and through Car-Sharing stations on their parking areas.

The municipality has a crucial role in gaining backing for the idea in the media and in the community of other stakeholders.

The technical performance, the design of stations and the reliability of the service (whether or not it serves the user-needs) are very crucial if you want to achieve a durable support by the municipality, the media and the market in general.
REQUIREMENTS FOR GERMAN ECO-LABEL (controlled by Institute for Quality Maintenance – Institut fuer Guetesicherung RAL)

(actually under actualisation, e.g. in reference to noise requirements)

1 Preliminary remarks

1.1 The Environment label jury in co-operation with the Federal Ministry for the Environment, Nature protection and Nuclear safety, the Federal Environment Agency, and having regard to the results of hearings called by RAL, has agreed on these fundamental principles for the granting of the Environment label. RAL e.V. has been appointed for the granting of the Environment label. All providers fulfilling the following conditions can, after applying to RAL and concluding a contract according to these provisions with RAL for the use of the label, be given permission to use the Environment label.

1.2 CarSharing will result in a reduction of cars necessary for transport and lead to a relief of public traffic space, which is of critical importance for the cities. According to studies, each car of a CarSharing provider substitutes some 5 to 8 cars, depending on local circumstances, which will be disposed of or will not even be purchased.

The CarSharing mobility service, through its attraction as an alternative choice of transport mode, offers considerable potential to reduce the impact on the environment of the transport sector, above all through encouraging the use of cost efficient, environmentally friendly vehicles, as well as through the lower emissions due as a rule to the technically new nature of the vehicle fleet of the CarSharing provider.

The CarSharing provider normally manages a pool of different classes of vehicles and makes these available to the subscribers. CarSharing participants can access the vehicles regularly after prior booking for shorter or longer periods of time. The vehicles should, after consideration of the wishes of the subscribers, be parked nearby and decentralised. The costs for the CarSharing member, apart from a monthly basic charge, depend on the period of use and the number of kilometres driven.

CarSharing providers, who are granted the Environment label, take seriously their responsibility for the environment, through vehicle technical standards. They mostly offer vehicles that are low in exhaust and noise emissions and which in their category are shown to
be the most fuel efficient (and therefore low in CO2 emissions). The setting up of tariff categories according to vehicle size and motor size creates a financial incentive to use a small, cost efficient vehicle.

CarSharing providers with the Environment label could receive operational advantages from local authorities, e.g. the establishment of CarSharing stations in public streets. This could increase the attractiveness of environmentally friendly CarSharing and at the same time contribute to relieving parking space.

CarSharing usefully extends the offer of public transport and other mobility services (taxis, hire cars, etc.). Considerable synergy effects are possible through co-operation between the CarSharing providers themselves and with other mobility services (e.g. joint ticketing, tariff incentives, co-operation with sales or reservations, agreements on distance based offers).

The target groups for CarSharing are single people, families, transport companies, public authorities, as well as private and public companies.

2 Area of validity
These principles apply to CarSharing providers, which offer organised CarSharing as a service.

3 Requirements
Those CarSharing providers, which are named in Section 2, can be marked by the Environment label, depicted on the first page, as long as the following requirements are fulfilled:

3.1 The CarSharing providers, listed in Section 2 must enable anybody to become a subscriber to their organisation. Checks on the length of time in possession of the driving license and on credit investigation according to general commercial conditions are unaffected by the above.

3.2 The CarSharing providers have at least 10 subscribers per vehicle.
3.3 The CarSharing providers guarantee to their subscribers the following minimum levels of service: 24 hour vehicle booking, pick up and return; Use of vehicles for as little as one hour is possible and the hourly rate should not exceed 15% of the daily rate; Billing and vehicle use calculated according to time, driven kilometres, free mileage is not allowed, and at least the running costs per km are included; Regular servicing of the vehicles, according to the manufacturers recommendations.

3.4 CarSharing provider vehicles must conform to all statutory requirements as regards transport and operational safety.

3.4.1 CarSharing Fleets: CarSharing provider vehicles must on application, conform to at least the EURO II standard for passenger vehicles or the EU 96/69 Directive for light commercial vehicles. They must ensure that all passenger vehicles and light commercial vehicles are in Classes M1 and N1 of the fleet at the latest 2 years after the granting of a contract for the use of the label which includes the following requirements.

3.4.2 New Vehicles

3.4.2.1 Passenger cars and light commercial vehicles in Class 1 The passenger cars as well as the light commercial vehicles class M1 or N1, respectively, which are purchased by the CarSharing Provider on or after the granting of the environmental label, comply with the requirements set forth in the table below. The further criteria listed shall assist in making a decision with regard to any car offers, which are equal in all other respects.

Requirements: Average Emission of CO2 by the CarSharing fleet (according to RL 93/116/EWG) 165 g/km. Admission pursuant to Directive 98/69/EG, Sec. 5.3.1.4, Table Row B (2005) M, Fuel Column

<table>
<thead>
<tr>
<th>Pollutants</th>
<th>Limiting Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>1.0 g/km</td>
</tr>
<tr>
<td>HC</td>
<td>0.1 g/km</td>
</tr>
<tr>
<td>Nox</td>
<td>0.08 g/km</td>
</tr>
</tbody>
</table>

Average noise emission (driving noise type inspection value) not exceeding 71 dB (A)

With respect to new cars equipped with Diesel engines, the statutory limits for exhaust emission according to EURO III must be observed until Dec 31, 2002.
3.4.2.2 Tyre noise characteristics
When purchasing a car it should be ensured, that such car is equipped with tyres permitted for the initial equipment of the respective car type, the use of which does not result in the average noise emission of 71 dB (A) being exceeded, or, as a substitute, with tyres in accordance with RAL-ZU 89.

3.5 The applicant commits himself to only depicting the Environment label in connection with the logo of the CarSharing provider at stations, on stationary, publicity material (for the mobility service) and on vehicles.

3.6 It is recommended to take the following additional criteria into account:
- Recycling concept (potential for recycling) with a minimum content of recyclable material of 85%,
- Environmentally friendly use of materials in the production of the vehicles,
- Environmental audit is carried out by the manufacturer

4 Proof
4.1 The applicant declares themselves ready to adhere to the requirements set out in Section 3. In addition, in order to prove the fulfilment of the standards in Section 3.4, they provide a list of all the vehicles (with vehicle fleets of more than 10 vehicles, also in electronic form), with their manufacturer, vehicle type, production data, as well as the appropriate carbon dioxide emission levels, the permitted exhaust norm and the noise levels (driven noise - typical test level) and sends a copy of the appropriate vehicle certificate.

4.2 The applicant proves the adherence to the requirements according to Sections 3.1, 3.3 and 3.5 by providing the conditions of contract, tariffs and the depiction of the logo.

4.3 Data on the membership and number of vehicles collected each year by 31 December must be presented by 30 April the following year. The applicant provides proof for the adherence to the requirements set out in Section 3.4 and the list updated with new vehicles as described under 4.1 as well as copies of the vehicle certificates of the newly purchased vehicles.
4.4 The applicant takes note of additional criteria and presents the appropriate documentation. Advice on additional criteria can be found in the valid list of VCD (Verkehrclub Deutschland e.V., German Transport Club).

5 Grantee and Parties involved

5.1 Grantees are CarSharing providers.

5.2 The following bodies are involved in the process of granting: RAL, Federal Environmental Agency and the state within the Federal Republic of Germany, in which the place of business, at which the products to be labelled are manufactured, is located.

6 Use of the label

6.1 The use by the grantee of the environment label is subject to a contract for the use of such label to be concluded with RAL.

6.2 Under such contract, the grantee undertakes to comply with the requirements set forth in section 3 hereof for the duration of the use of the environment label.

6.3 Contracts for the use of the environment label shall be entered into with respect to the labelling of products according to section 2 hereof. The term of such contracts shall end on Dec 31, 2002. If no notice of termination is given on or before Mar 31, 2002, the term shall be renewed for another year and shall be continually renewed each year for another year, until notice of termination is given on or before March 31st of the respective year of renewal, effective as of December 31st of such year. After termination of the contract no further use of the environment label is permitted, whether for the labelling of products or for promotional purposes. Any products which are still in the market shall not be affected by this provision.

6.4 The contract for the use of the environment label shall provide for the following:

6.4.1 Grantee.
2.1.3 **LONDON**

**Preliminary measure**

From October 2001 to February 2002, the London team developed a range of marketing approaches, including Census analysis, focus groups to position the 'product', development of a new marketing strategy, testing of various marketing approaches with distribution of leaflets and information about car-venience followed up by telephone calls and visits.

A standard socio-economic census model for identification of potential users has been developed to assist future marketing.

The outcome of marketing to date has not been satisfactory but it is hoped that the revised marketing strategy will be able to focus better and achieve greater results.

From February 2002 onwards various aspect of the car-venience scheme have been tested. This includes a trial run of Sutton Council membership involving staff in Sutton Council’s main office complex. The results will be used in the new marketing strategy. There will also be a pool car test in Southwark and first results will be expected in late autumn 2002. Operator, in June 2001 AVIS Rent a Car Ltd were appointed to use and develop their Carvenience scheme in the project.

In September 2002 AVIS launched a much improved scheme URBIGO aimed to create a better image and marketing approach for the car club.

**Cooperation with other actors:**

*South Central and Thameslink railway operators* (this cooperation started in April 2002 onwards), with the possibility of integrated ticketing, parking, information exchange. First steps are now in preparation, but unlikely to result in action until spring 2003.

*Transport for London (TfL)* i.e. buses in particular, but maybe underground. TfL is now actively involved in the UK MOSES steering group and a bid for additional funds has been submitted by Southwark and Sutton to TfL.

*I+plus / City space electronic communication:* From April 2002 onwards. The online booking system is in preparation and this will when fully operative be transferred to the I+ points. First meetings have been held to ensure that evolving software is compatible with the need for condensed software of the I+ system.
New marketing activities have started: three events have taken place during August / September 2002. An initial launch of URBIGO scheme in Sutton in August, a formal national launch on the South Bank in London on the 17th September and a local event in Southwark on the 22nd September.

Publicity achieved was limited during the first phase, with a few press reports in both Southwark and Sutton. The 2001 launch was overshadowed by September 11th.

During 2001 there was intensive leafletting in both Southwark and Sutton with some 6000 households visited up to 3 times each. This was coupled with a special offer of a 75% discount on the annual membership fee. None of these were successful.

There has been ongoing involvement of press officers from the two London Boroughs and AVIS, as press releases and publicity in local papers again with few real results.

Therefore AVIS commissioned consultants to totally revised both the product and the marketing approach in December 2002. The result of that commissioned was a rebranding of the car club to URBIGO, which was launched in September 2002. Details on www.urbigo.com

There are now efforts underway to raise funds for marketing the new product.

**Site specifics**

The London project is based on two contrasting areas, one very high density mixed development the other lower density primarily residential. The sites are chosen in such a way that they are accessible to business users and residents alike. For both areas the London team will need 'anchor' commercial users to allow private use to build up. In Sutton the key initial anchor is the local authority which has committed itself to participate in the scheme. In Southwark such anchors are more likely to be the large businesses in the Southbank area. There is now a proposal by Southwark to use one or two low emission vehicles in the central area of London - to avoid congestion charging costs.

The London project has as an emerging aspiration to employ electric or electric hybrid vehicles as an addition to the traditional URBIGO vehicle fleet. This could be done either by adapting the existing electric vehicle fleets in Sutton and Southwark or by expanding the low emission vehicle fleet further. However realistically this is a secondary consideration beyond achieving a critical mass of customers for the project.
The convenience vehicles are managed by AVIS in all their aspects and any electric / electric hybrid vehicles added to the scheme would be managed similarly. Thus the operation is entirely outside the local authority fleet management responsibilities.

The opportunities for integration with local rail operators and bus operators appear substantial as the first discussions have demonstrated. Opportunities include parking, car club sites, electronic information exchange, mutual publicity, joint ticketing etc.

The car share scheme is seen as a city wide opportunity to lower environmental impacts. The suggestions to move towards low emission vehicles seeks to avoid congestion charging.

The scheme seems to provide a welcome opportunity to be green without being seen to be anti-car. The scheme is welcome by the politicians of the two Boroughs participating with seemingly no political differences over the idea. Clearly it needs to be demonstrated that the ideas can work and that members of the public in the UK are willing to join. The political support so far has allowed several applications for new developments to include car sharing stations and provides for membership of the new occupiers once the developments are completed. However even here the popularity of the scheme remains to be demonstrated.

As far as they can ascertain there are no neither adverse nor supporting aspects in the legal framework which would either hinder nor help the introduction of car clubs.

The proposal needs to operate without public subsidy once it takes off. However the two Boroughs have provided incentives which are very valuable in the London situation. Southwark offers free parking in controlled parking Zones anywhere in the Borough (up to 2 hours at any one location). Both Sutton and Southwark offer purpose built shelters for the car stations and Sutton in addition are introducing e-information points at one station as a trial. After one year of trialling there is a question of how long operations need to be supported until they run on a self financing base.
Software

The London team has not yet sufficient experience of the effectiveness of the various elements to make definite judgements. However they confirm the choice of purchasing external service in the same way they did before.

Server

The UK partners wished to employ a contractor to introduce a technically advanced car share system.

The parts already implemented are Central Server in Manchester, AVIS central booking system. Special car share data is managed from AVIS HQ in Hayes.

All services developed by AVIS and their subcontractors. The supplier is Avis Car Rental in house system.

Network and product information system

The UK partners wished to employ a contractor to introduce a technically advanced car share system with a range of vehicles and propulsion systems to match customer expectations.

To date two types of vehicles (Astra and Corsa) are being offered. As soon as customer base builds up additional types of cars will be added. This is also subject to AVIS rebranding exercise.

All services developed by AVIS, their supplier too, and their subcontractors.

Early days, cars working well so far with small initial glitches.

Fleet management

The UK partners wished to employ a contractor to introduce a technically advanced car share system.

This service is managed by AVIS rent a Car. Vehicles are rented in 15 min segments. Reservation allows access to car with key fob (omni directional radio beam) within -2 to +20 minutes of time booked. Maintenance regime currently ad hoc, being developed as bookings pick up.

All services developed by AVIS and their subcontractors. The supplier is VRS Europe Ltd.

There are no technical problems to date, however very early days.
**Customer management**

The UK partners wished to employ a contractor to introduce a technically advanced car share system.

The parts already developed are one registration of customers / persons entitled to drive, registration on proof of driving license and bank details, one tariff group only (with discount) however likely to change shortly and billing information monthly by direct debit.

All services developed by AVIS and their subcontractors. The supplier is VRS Europe Ltd.

The service is still early days in terms of evolvement of system.

**Tariff management**

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc.

At the moment one tariff system composed of fixed charge and mileage together with one registration fee (discounted for first 100 customers in each Borough) is being developed. Tariffs are being tested for robustness and are likely to change shortly. All services developed by AVIS, the supplier.

It's too early to comment as customers only now building up. Tariffs likely to have to be more diverse to cater for the range of customers expected.

**Invoicing**

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc.

It has been implemented BILLING monthly based on period booked but no shows fully booked. Likely to be further developed in near future.

All services developed by AVIS (the supplier).

It’s too early to comment as customers only now building up. Tariffs likely to have to be more diverse to cater for the range of customers expected.
Reservation software
The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc.
The booking manager software, interfaces via the TCP/IP data server, with the Hire Manager. Software is developed by AVIS. This is in turn interfaces with Cellocator communications software.
It’s too early to comment as customers only now building up. Tariffs likely have to be more diverse to cater for the range of customers expected.

Employee section
The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc.
The number of members and vehicles our present booking system can deal with is 5000. The operating speed of the system would not be impacted even at this level
All services developed by AVIS (the supplier).
It’s too early to comment as customers only now building up. Tariffs likely to have to be more diverse to cater for the range of customers expected.

Administration section
The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc.
Member registration is provided as part of the booking system. The billing information is provided from the booking manager and converted to a filemaker pro file.
All services developed by AVIS (the supplier)
It is too early to comment as customers only now building up. Tariffs likely to have to be more diverse to cater for the range of customers expected.
Background functions and Reservation Check

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc.

They have no street furniture requirement in accessing their vehicles, as this is provided in the form of a personally encrypted key fob specific to each individual member.

All services developed by AVIS (the supplier)

It’s too early to comment as customers only now building up. Tariffs likely to have to be more diverse to cater for the range of customers expected.

Complaint management

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc.

All complaints are channelled through our reservations centre and passed to the project manager. In the long term this will be treated as part of the systems development.

All services developed by AVIS (the supplier)

It’s too early to comment as customers only now building up. Tariffs likely to have to be more diverse to cater for the range of customers expected.

Vehicle maintenance: planning and reservation

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc.

Operatives have access to vehicles via an Electronic Key Fob. As the booking system is a "live " system vehicles can not be double booked. Operatives only maintain one car at a time to provide availability at all times.

All services developed by AVIS (the supplier)

It’s too early to comment as customers only now building up. Tariffs likely to have to be more diverse to cater for the range of customers expected.
Application programming interface

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc.

VRS Europe has developed data servers and has employed Microsoft server side application programming interface protocols.

All services developed by AVIS (the supplier)

It’s too early to comment as customers only now building up. Tariffs likely to have to be more diverse to cater for the range of customers expected.

Reservation

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc.

Web booking facilities have been developed by VRS Europe. Deployment will be dependent very much on the financial implications.

All services developed by AVIS (the supplier)

It’s too early to comment as customers only now building up. Tariffs likely to have to be more diverse to cater for the range of customers expected.

On line reservation

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc.

At this point this is not an issue as the general availability of WAP technology in the U.K. is still in its infancy.

All services developed by AVIS (the supplier)

It’s too early to comment as customers only now building up. Tariffs likely to have to be more diverse to cater for the range of customers expected.

WAP-reservation / ARS-reservation
The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc.

All services developed by AVIS Car Rental

It’s too early to comment as customers only now building up. Tariffs likely to have to be more diverse to cater for the range of customers expected.

System service

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc. Marketing would be the responsibility of the contractor with help as necessary by the municipalities

A new marketing strategy by AVIS has been devised, which was launched in September 2002

AVIS will provide the new marketing approach

Brand

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc. Marketing would be the responsibility of the contractor with help as necessary by the municipalities. The contractor has now re-branded the car club into URBIGO which will be marketed across Europe. This was launched in September 2002

Marketing area

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc. Marketing would be the responsibility of the contractor with help as necessary by the municipalities

For more details see above.
Marketing material
The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc. Marketing would be the responsibility of the contractor with help as necessary by the municipalities.
For more details see above.

Public relations
The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc. Marketing would be the responsibility of the contractor with help as necessary by the municipalities.
For more details see above.

Customer survey
The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc. Marketing would be the responsibility of the contractor with help as necessary by the municipalities.
For more details see above.

Backoffice
The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc. Marketing would be the responsibility of the contractor with help as necessary by the municipalities. The aspects covered here are of little concern to the commissioning organisations.

The in car technology feeds all this information back to the Booking Manager, which in turn is exports the file to File maker pro with Start and End of hire information, including the Mileage driven by the member.
AVIS has developed this service.
It’s too early to comment as customers only now building up. Tariffs likely to have to be more diverse to cater for the range of customers expected.

**Support at fleet management**

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc. Marketing would be the responsibility of the contractor with help as necessary by the municipalities. The aspects covered here are of little concern to the commissioning organisations

Vehicles provided via AVIS Rent a Car Ltd

**Purchase of vehicles**

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc. Marketing would be the responsibility of the contractor with help as necessary by the municipalities. The aspects covered here are of little concern to the commissioning organisations

Vehicles provided via AVIS Rent a Car Ltd

**Purchase conditions for vehicle accessories, access technology, communication between vehicle, location and server**

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc. Marketing would be the responsibility of the contractor with help as necessary by the municipalities. The aspects covered here are of little concern to the commissioning organisations

Vehicles provided via AVIS Rent a Car Ltd

**Vehicle sale**

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc. Marketing would be the responsibility of the contractor with help as
necessary by the municipalities. The aspects covered here are of little concern to the commissioning organisations

Vehicles provided via AVIS Rent a Car Ltd

*Financing instruments*

The UK partners wished to employ a contractor to introduce a technically advanced car share system. Ultimately as customer base grew this would need to be very flexible in terms of vehicles, options etc. Marketing would be the responsibility of the contractor with help as necessary by the municipalities. The aspects covered here are of little concern to the commissioning organisations

Vehicles provided via AVIS Rent a Car Ltd
2.1.4 **PALERMO**

**Preliminary measure**

The Municipality of Palermo, with ICS, is going to carry out the design of the overall market survey and the final version will be available in autumn 2002. Moreover, direct market analysis over the major 13 Italian cities were developed through phone interview and direct focus groups and creative groups. The study was performed by ICS for the overall Italian national circuit and was closed in January 2002. Even if the result is good a deeper analysis is foreseen for each single city when the operational CS system will be implemented. The first two studies have been already performed for Turin and Venice.

Regarding the operator, the car sharing system will be selected through a public tender which is currently under preparation.

Preferably, the solution to be adopted should be a mixed company involving AMAT, the local public transport company, and a private partner, as in Italy car sharing is seen as a complementary form of the public transport companies.

Operator's legal status is going to be defined within the end of 2002 and the new system will start the activity within the first six months of 2003.

It will be evaluated the possibility to develop common plans with the public transport operators concerning mainly combined car sharing memberships and public transport ticket and common public awareness campaigns.

The integration of car sharing with the other modal transport is already defined in the Business plan of new car sharing system.

The points of existing car sharing system are located near the major public transport stations: Notarbartolo Station and Central Station (Piazza Giulio Cesare).

All possibilities for facilitate intermodal interchanges are evaluated: actually, there is a common bus and underground ticket called "Metro-bus", which is really very cheap (0,75 euro). It foresees to integrate this with car sharing facilities.

To promote the new service, an advertising campaign, integrating dissemination and marketing tools will be carried out. Campaign will be mainly addressed towards the different categories of potential customers (private, enterprises, local authorities etc) underlining the advantages offered for each category.
General information about car sharing has already been disseminated but the main promotional campaign will start up a few months before starting up of the new car sharing system. Till now general information about car sharing has been disseminated by the City of Palermo through: brochures, articles in the local press, the website of the City of Palermo and public events (CarFreeSunDay, conventions etc.). Moreover car sharing promotion has been carried out at a national level by ICS and Environmental Ministry (TV&radio interviews, articles on news-papers, press conferences, advertisements, etc. car sharing local service website).

Site Specific

The existing car sharing system (developed within the frame of the European Project ZEUS) consists in 40 electric vehicles but the new car sharing system will be implemented using conventional vehicles. These vehicles will respect the standards about emissions defined by ICS and those one defined by the city administration for entering the traffic restricted zones (ZTL). The city of Palermo intends to carry out an evaluation about emissions saved due to the use of car sharing vehicles instead of private ones.

The new car sharing system is under the design phase, and it will be integrated with the existing system in terms of management of the fleet and users.

For the specific role played by the Italian Ministry of Environment and by ICS, the car sharing systems in Italy is born with a deep political commitment by the Municipalities.

Therefore, the City of Palermo, in order to promote car sharing, will give to the car sharing fleet benefits like entering the traffic restricted zones and free parking in the municipal paying areas.

Currently there is no clear definition of car sharing in the Italian legislation. There is a law design for the revision of the ‘Codice della Strada’ to insert different measures among which the ones regarding car sharing. It foresees the possibility to define car sharing as a public service complementary to public transport. At the moment the law is on the trial for acceptance.

Meanwhile, the main problems to implement car sharing systems are related to the possibility to reserve spaces on the public roads for car sharing parking lots. A specific study was performed by ICS lawyers to give to the municipalities the guidelines to set up properly a car sharing system with the possibility to reserve public spaces using a rule related to commercial activities.
Pricing (including pricing integration with other modes) and Cost framework are going to be defined in the Business Plan under development.

**Software**

The existing CS system uses a customized software based on Oracle but for the new CS system will adopt the software and the overall information system selected and implemented by ICS.

This is based on a distributed architecture linked through a VPN. Each operator has a client server local architecture connected to the board computers on cars. A national call center performs all the end user interface and connects in real time the local operator through the VPN connection.

The call center is equipped with the standard bulk of software to perform the basic functionalities, while the local operators have additional software to allow commercial management, fleet management, billing, etc.

The new CS system is now available and is already operating in four different cities of the Italian circuit.

**Reservation**

The new CS system operating foresees the possibility of On line reservation, WAP-reservation and speech reservation with telephone reservation via Call center (One telephone number throughout Italy).

The Call center communicates with the Local Centres, each one in a different city, that manage the service. Customers can dial one telephone number throughout Italy (Call center). To make a telephone reservation customers mention:

- their customer number,
- city where the vehicle will be used,
- data/time and location of the vehicle’s taking (reservation beginning),
- data/time and location of the vehicle’s deposit (reservation end),
- desired vehicle,
- specific accessories requirement.

The Call-Centre, communicating with the local databases (Local Centres):

- checks the availability of vehicles,
- either confirms the reservation to the customer or proposes alternatives,
- insert the reservation in the system.

The Local Centre takes care of the vehicles’ fleet and prepares the vehicle transmitting the reservation. The customer uses the vehicle; during the use and especially at the end the vehicle transmits (via GSM) to the Local Centre the data related to the service. The Local Centre prepares the customer’s periodic invoice using the data acquired.

The Local Centre communicates via GSM with the vehicle’s internal system, the main data exchanged will concern:
- vehicle’s state
- vehicle’s position
- emergency messages
- opening and closing of the service

In the Call center there are several servers. All the system is connected through VPN technology and each city is connected with the Call center by VPN.

**System service**

ICS has defined a registered brand which can be used only by operators belonging to this circuit. National promotion activities are under execution especially through media. Local direct marketing and commercial activities in the cities implementing the service are going to be directly supported by ICS. The following activities are locally foreseen: direct mailing to persons selected by commercial databases, leaflets, press conferences and press office activities, affixations, newspapers advertisements, gadgets, market analysis and evaluation, local TV and radio advertisements, websites, etc. A series of agreements at a national levels are on the way of definition involving realities like FS (Italian Railways), Alitalia, Professional Associations, etc, in the perspective of co-marketing. Combined policy will be promoted.

As just said, the marketing is managed directly by the local operators, each of one will have different strategies. In Palermo, like in many other cities of ICS circuit, the local public transport company intends to participate in the company CCC which operates the new CS system so they intend to develop common plans concerning mainly: combined CS memberships and public transport ticket and common public awareness campaigns. Another
important action will be developed toward the Public Administration to use car sharing system as a part of its fleet.

The local operator, in accordance with the general lines defined by ICS, will define marketing material, public relations and customer survey requirements.

2.1.5 Turin

Preliminary Measures

The system yet available but under test phase, is operated by the company CCC-City Car Club, composed by ATM, the public transport company (majority) and Savarent (a company of FIAT Group) and Capi cooperative.

During the first year of the Moses Project, the 5T company has set up strong liaisons with the company (CCC - City Car Club) in charged to develop and manage the car sharing system in the Turin area. 5T has supported the CCC company and the local Public transport company ATM in the designing and deployment of the car sharing system. The car sharing system will be operative in few months, 5T is working in order to test all its component and to integrate the new mobility “features” in the mobility framework managed by ATM.

The main problem encountered has been the different interpretation of the technical specification between the system supplier and the CCC management and some delays in the supply of the system itself.

Due to the delays the system will starts its services 3 months later and some of the 5T activities already planned have been postponed

To advertise the car sharing service a promotional campaign, integrating dissemination and marketing tools will be carried out. This campaign will be mainly addressed towards the different categories of potential customers (private, enterprises, local authorities etc) underlining the advantages offered for each category.

General information about CS has already been disseminated but the main promotional campaign will start next month with the starting up of the new CS system.

The result of these activities partially carried out with press-conference and a free call center, but it’s too early to judge.

Moreover advertisements, articles on newspapers, press conferences were used in April but it’s too early to judge their effects. They would realize a website too.
Site specifics

The core of the CS system is based on conventional thermal cars, but respects the ICS standards about emissions, which are very strict. Some vehicles are Bipower, they use conventional fuel and natural gas. Integration into fleet management is planned. It's aimed to set the new CS system in the right place in the current transportation context. CS has to convince customers to leave individual and private modes and has to help the public transport services when and where they are weak.

For the specific role played by the Italian Ministry of Environment and by ICS, the CS systems in Italy is born with a deep political commitment by the Municipalities, which generally gives to the car sharing fleet benefits like free parking in the municipal paying areas (Blue Zones), entering the traffic restricted zones, and using reserved lanes.

Public spaces available for parking car sharing cars have been reserved on the road through a modification to the Regulations of Municipal Police which has been approved by the City Council.

About pricing a cost framework (e.g. taxes, subsidising of PT, ...), the pricing scheme is completely defined.

Software

All the software in this configuration is technical available and is under test phase. The next month is foreseen commercial starting.

The software and the overall information system is the same for all the Italian operators belonging to ICS circuit. It is based on a distributed architecture linked through a VPN. Each operator will have a client server local architecture connected to the board computers on cars. A national call center will perform all the end user interface and will connect in real time the local operator through the VPN connection.

The call center is equipped with the standard bulk of software to perform the basic functionalities, while the local operators have additional software to allow commercial management, fleet management, billing, etc.

The service was implemented with upgrade and modifications of Rentalsfleet IVU sw.

Interface of this software with the sw managing, all the board computer system was developed by TRS Italy. Web site and web reservation was specifically developed. The supplier is TRS–IVU.
The system allows good service levels and a relevant flexibility. The overall system architecture is very open and flexible and allows the connection of new operators to the circuit in a very easy way. All these items of course must be evaluated on the field and this will be realistically possible at least within the end of this year, after a 6 - 8 months trial.

About network and product information, the software was specifically developed on the basis of ICS specifications starting from the bulk of Rentalsfleet product by IVU. Network Ethernet std on VPN.

Operative system requested is:
- server: Windows 2000 Server
- client: Windows 2000 Professional

Data Base
- DB Oracle

The software performs specific functions as:
- **Fleet management**
- **Customer management**: it is able to implement commercial management of customer and management of "best choices".
- **Tariff management**: The tariff is a combination of:
  - price class (depending on type of vehicle)
  - coefficient for ride (per time and per distance)
  - coefficient for time brackets (day, night, weekend)
  - coefficient for the distance brackets
  - coefficient for the customer (depending on customer's history).

In the tariff management a tariff is evaluated as a product of the above elements. The software allows the definition of different customer profiles (single, collective, family, etc.) The structure of the tariffs is, within certain measures defined by the operator using the described parameters. The system has a proper export function of the reports to allow data post processing to implement eventual customized pricing policy defined by each single operator.

- **Invoicing**: a standard billing function is foreseen within the package. A generalized interface of the billing data and the user report is implemented to allow if necessary customized billing for companies performing different activities and with a different count management system.
Reservation is possible through phone to the call center or the local operator. The call center can perform reservation for any of the local site belonging to ICS circuit. Reservation is possible through web too. Last minute and open end and one way reservations are possible from the software point of view (even if in the first phase of the service, till now, only one operator gives the one way option)

A function to control the availability of the car some time before the reservation time is implemented, to allow the assumption of alternative measures in case of car absence or unavailability. This is performed through a communication between the local server and the car.

The operator interface is a standard windows like interface operating with buttons, windows, menus, scroll bars, etc. All the usual administration mechanisms are implemented by the software. Statistical reports and commercial data processing are foreseen to optimise the service.

The software (the call center version too) has the possibility to record complaints but no specific processing is defined. The maintenance is compliant with the car factory specification and will be done in "outsourcing".

**Reservation**

The service and the reservation functions are yet operative.

It’s available On line reservation and WAP-reservation is under activation. ICS (Italian Car Sharing) will give the system to the operators

There is the possibility of speech reservation, by telephone, via Call center (One telephone number throughout Italy).

The Call center communicates with the Local Centres, each one in a different city, that manage the service. Customers can dial one telephone number throughout Italy (Call center).

To make a telephone reservation customers mention
- their customer number,
- city where the vehicle will be used,
- data/time and location of the vehicle’s taking (reservation beginning),
- data/time and location of the vehicle’s deposit (reservation end),
- desired vehicle,
- specific accessories requirement.
The Call-Centre, communicating with the local databases (Local Centres):
- checks the availability of vehicles,
- either confirms the reservation to the customer or proposes alternatives,
- insert the reservation in the system.

The Local Centre takes care of the vehicles’ fleet. The Local Centre prepares the vehicle transmitting the reservation

The customer uses the vehicle. During the use and especially at the end the vehicle transmits (via GSM) to the Local Centre the data related to the service. The Local Centre prepares the customer’s periodic invoice using the data acquired.

The Local Centre communicates via GSM with the vehicle’s internal system. The main data exchanged will concern:
- vehicle’s state
- vehicle’s position
- emergency messages
- opening and closing of the service

In the Call center there will be several servers. All the system is connected through VPN technology. Each city will be connected with the Call center by VPN.

**System service**

About product, they have planned tariffs and composition of fleet: the tariffs have been already defined but not yet published, the composition of the fleet (City cars, vans, commercial Vehicles, Bipower fuels) has been already done by an internal definition (CCC Company). The supplier is Fiat.

Staff matters and administrative procedures are already defined as regard time registration, workflow assistants for customer management and fleet management (now available), manual, with available on line help and online shop-on line management of proper data by customers with only booking functions.

ICS has defined a registered brand which can be used only by operators belonging to this circuit. National promotion activities are under execution especially through media. Local direct marketing and commercial activities in the cities implementing the service are going to be directly supported by ICS. The following activities are locally foreseen: direct mailing to
persons selected by commercial databases, leaflets, press conferences and press office activities, affixations, newspapers advertisements, gadgets, market analysis and evaluation, local TV and radio advertisements, websites, etc. A series of agreements at national levels are on the way of definition involving realities like FS (Italian Railways), Alitalia, Professional Associations, etc, in the perspective of co-marketing.

The marketing is managed directly by the local operators, each of one will have different strategies. In Turin, the local transportation company is deeply involved and the implementation of combined subscription of public transport and CS season tickets will be promoted. Another important action will be developed toward the Public Administration to sell CS system for a part of their fleet.

They have already done brochures, defined compliant with the general lines defined by ICS. They have to define with the general lines defined by ICS public relations and Customer survey. The ICS budget foresees a sum for the central monitoring of the service and the customer satisfaction. Of course it will be performed after a significant time from the start up of the services.

**Services on demand**

About Mailing of bills, "Snail" mail and E-Mail were integrated in the system. The suppliers are TRS-IVV-DATAMAX

Moreover, an integrated staff has already been trained and is going to manage the accounting and training procedures.

The general customer service related to the specific car sharing service is foreseen by the call center. Information about pricing, association, service characteristics, compliant, etc are available.

They can also give real time information on the availability, assistance to users problems, emergencies, mechanical faults, etc. Location maps and district maps are under definition: a dedicated brochure is going to be developed.
2.1.6 GENOA

The framework of the Car Sharing system in Genoa

The implementation of car sharing in Genoa is going on.

The technical design and the relevant plan are already done and are currently at the attention of the operator selected by Genoa Municipality.

The system will be operated by a joint company built up by AMT (the public transport company of Genoa) and CCC of Turin.

The new company is not still active (under construction).

In November the final project will be submitted to ICS for approval and the operational start up of the system is foreseen for the spring of 2003.

The system will be part of the national ICS circuit and will adopt all the already mentioned standard.

In the next page is shown the state of work in Genoa.
The specific contributions from the site of Genoa (TECMAV and the Municipality of Genoa) to WP3 are focused on theoretical models for the study of fare policies and applications that involve CS within intermodal chains. Genoa has produced a detailed and technical description reported in the Part B in the paragraph 3.2.5 Genoa-Tecmav.
2.1.7 WALLONIA

Preliminary measure
Since April 02 to August 02, a qualitative (round table, interviews) as well as a quantitative survey has been done only for Louvain-La-Neuve, being a highly specific case of a university new town, pedestrian to a large extent, with a high density. They carried out the stated measure: the results are being analysed at this moment (Oct 2002)

They located a selection of demonstrator towns, based on a previous survey of potential towns in the Walloon Region, using criteria of intrinsic potential and level of interest of public authorities. Cities being selected are Namur, Louvain la Neuve and Dinant, each with specific target groups within the MOSES project

For the cities of Namur and Louvain-la-Neuve (not yet for Dinant), they also specified a local selection of carsharing sites, in close cooperation with city authorities, based on criteria such as density of population, proximity of non-individual clients (institutions, companies, commerce), public transport accessibility, available space, area covered (10 minute walking distance), complementarity, visibility.

Optimobil is the only operator, but Optimobil is cooperating with the public transport company on several items.

The regional bus operator TEC has formally committed itself to supporting carsharing through a binding convention with the public authorities. It will cooperate with the carsharing operator in areas such as publicity support, information at TEC info points, combined season tickets, marketing towards TEC customers, sensitising TEC personnel. They will undertake this in November 2002.

They carried out the stated measure with combined product and joint marketing campaign planned for October/shared office already since the start in May

Negotiations will be held with taxi companies to see if they're willing to cooperate in May 2003.

At Dinant et Marche-en-Famenne there is also a collaboration with tourism actors (tourist office, hotels…) to examine car sharing for tourist purposes.

At all sites, since November 02, a collaboration with social actors (social services…) will start to develop car sharing with social objectives.

Starting in Namur as the scheme is only operational in Namur at that time
About Initial marketing activities, there was a pre-launch event (inauguration, press conference) in May 2002 of 1 site at Namur, with mention of MOSES, ca. 5 months before nationwide launch.

The pre-launch has been announced in all media (television, radio, local and regional newspapers)

In October 02 for Namur, November-02 for Louvain-La-neuve, June-03 for Dinant et Marche-en-Famenne, membership drive by distributing folders and leaflets, locating sites and services, publicity on buses (not exclusively for MOSES sites) in collaboration with public transport.

There are Special offers too: at Namur: pre-launch offer (no subscription fee) at all sites a reduction of price for public transport users (= TEC: all-in ticket)

Pre-launch offer has been offered to the first clients, joint offer with PT has been planned for October.

The existing Taxistop website has been replaced by Cambio client site in May 2002. (See http://www.cambio.be)

Direct mailing aimed at public transport users, based on TEC client database are postponed to October.

In the same period, they also used mouth-to-mouth publicity, stimulated through training of TEC personnel, and possibly information sessions for local associations (commercial or other), public information session(s) announced in printed press (not only for MOSES sites) and also small-group information sessions, on a two weekly basis, for declared potential clients, to finetune and personalise their adhesion. (not only for MOSES sites)

Site Specific

It’s important to notice that the selected cities are small towns, without 'urban' public transport, only served by train and regional bus network (TEC) (Louvain-La-Neuve is largely pedestrian university New Town)

Walloon regional authorities are the initiators of the carsharing launch. A survey of cities determined the feasibility of carsharing and the level of interest. Authorities of the selected cities then were asked to sign a convention, committing themselves to supporting the development of carsharing and to collaborate with the MOSES project. This cooperation
includes providing data for preliminary research, providing free parking spaces and carrying out the necessary work, supporting dissemination of information.

Support by the federal ministry of mobility to make possible carsharing bays on public roads. Carsharing bays on public roads:

1) official traffic sign: set by the federal ministry of transport

2) definition of "shared car" to be allowed to use the carsharing bays: in principle decide by local authorities (by police regulation); the Federal Ministry of Mobility has set up a task force, uniting the 3 Regions in order to find a common solution; In the meantime the Federal Ministry has approved a temporary solution for Namur: a local police regulation identifies "shared cars" by an official sticker (provided by the Walloon Region).

Before MOSES, Taxistop had been preparing the launch of carsharing in Belgium's main cities, and done some previous research.

Within the MOSES framework, the region of Wallonia will set up carsharing sites in 3 smaller cities: Namur, Ottignies-Louvain-La-Neuve and Dinant. Another aspect is the transfer of the CAMBIO system to Belgium.

The launch will not take place at the same time. The main milestones are these (dates are subject to change):

- May 2002: pre-launch in Namur (one site, 3 cars). This will serve as a test-case for the CAMBIO system and other aspects, such as cooperation with public transport.
- Autumn 2002: real launch in Wallony with additional sites in Namur and launch in Ottignies-Louvain-La-Neuve (including a university new town)
- 2002-2003: launch in other regions in Belgium (Brussels and Flanders)
- July 2003: launch in Dinant (related to the tourist season).

**Software**

Their service foresees:

- Central cambio NT-server in Bremen - connected by Linux-Router - access via secured internet connection using VPN (virtual private network) over DSL. Both full browser applications as local applications will be used. For further details see cambio description.
- INVERS CUCM installed in Belgium for all belgian carsharing sites
They are partially implemented by an external service but there are still some technical problems (eg CUCM server). The supplier is Cambio/Invers. The result will be to evaluate at the end of the test phase.

The software foresees input and production of information on vehicles, vehicle types and vehicle classes, prices, definition of cities, city districts and locations and the close surroundings; display on website, in reservation system and at on line reservation.

(For more info, see Cambio description).

Regarding fleet management and customer management see Cambio, the supplier. All these elements have to be evaluated at the end of the test phase.

Tariff management is like cambio with the exception of types of lending: no last minute foreseen in the near future.

Also tariff management is implemented by Cambio and will be evaluated at the end of the test phase.

Billing is already implementing in cooperation with cambio germany caused by some software problems which still have to be solved.

Board computer system is in use in 6 cars up to now; this is implemented by an external services, Invers. They have to evaluate the service at the end of the test phase.

For reservation software it must remark that they didn’t use lockers during start phase. They will exploit Buze99ML multilingual in french version and will implement it by an external service i.e. cambio.

The software has also the function of optimisation of reservation but it’s not relevant as there will be no lockers in the start phase.

Website is already online. The cambio website will be used with an extra belgian module (different pages on pricing,...). Also this aspect has to be evaluated at the end of the test phase.

For the other sections (employee, administrator, compliant management, vehicle maintenance) you refer to cambio description. However all these aspects have to be evaluated at the end of the test phase.

Reservation

It’s foreseen On line reservation: you can find information about reservation and modification to reservation at [www.cambio.be](http://www.cambio.be).
This function is been implemented by an external service (cambio): it operates very well. They are waiting for conclusion evaluation

WAP Reservation is not available, while for a whole description of the operation of speech reservation see cambio site but with some additional remarks:

- Telephone reservation via call center - one telephone number for all frenchspeaking clients in Belgium (and one for dutch speaking clients). Starting period: service from Monday-Friday from 9.30 till 18 and on Saturday from 10 am till 17.30 (own staff).
- No registration of conversations

This function has been implemented by their service: question of recording all incoming calls seems to be relevant - not evident in Belgium. They are waiting for conclusions evaluation

**System service**

General conditions of contracts have been checked by a lawyer. Cambio tariff structure is used (prices adapted to belgian market).

All is based on existing cambio contracts. They have a legal problem: using the word caution involved that this money had to be put on a separate account and could not be used - contracts had to be adapted

To define general conditions and forms Cambio will be used as reference. An adaptation to the belgian situation is made.

This aspect is in development (some forms are already ready, others aren't)

Tariffs have been implemented based on the same structure as cambio Germany - amounts have been changed

Also fleet composition is based on german experience in order to be able to guarantee that built-in hardware (Invers' vehicle access technology) functions properly.

They have 6 cars in use, and 6 new cars planned for October (based on german fleet composition). The supplier of this service is Belgian operator

About membership to associatiions Optimobil wallonie has still to decide whether it will join ECS

Regarding Staff matters and administrative procedures:
- Optimobil uses its own time registration software (intranet application) (module available)

They implemented this service by proper development and have to evaluate the result.
- Workflow assistants for customer management and fleet management is not yet implemented; pre-launch phase will be used to work out those workflows
- Manual is available. They have a manual for reservation software BUZE
- Online Shop – on line management of proper data by customers is not yet available but for more details see cambio description
- Marketing: cambio layout will be used - changed if necessary to belgian situation. This aspect has been implemented by an external layout (cambio). They had more than satisfactory results.
- Brand: the brand „cambio“ will be used for the carsharing product in Belgium
- Marketing area: the geographical definition of marketing areas is based on municipalities. For Wallony this means the cities related to the Moses project (as eg Namur, Ottignies, ...) and others (as eg Liège) - optimobil has the exclusive right to use the brand cambio in Belgium

Layout is provided by cambio with adaptations to the belgian context by optimobil/taxistop:

1. Leaflets: general cambio information leaflets (adapted version) will be used - own information leaflets for specific target groups (eg tourism) will be produced during the Moses project (later phase).
2. Advertisement: to be decided whether advertisements on busses; will happen in September-October 2002 (official launch in Namur)
3. Customer manual: the cambio customer manual is being adapted to the belgian situation.
4. Business papers
5. Website: Cambio maintains the www.cambiocar.com. website on which the carsharing service is presented in detail and where the tariffs (optional price recommendation), the range of cambio cities and locations and the available vehicles are described. A belgian module will be added (different prices, car types,...) and this site will be integrated with the belgian carsharing site (www.carsharing.be or www.cambio.be).

Optimobil will evaluate press items about carsharing in Belgium, and with Taxistop will take care for press releases together with Walloon government and the cities involved (+other partners as eg TEC)

About Customer survey yearly might be considered after start up.

**Backoffice**

Mileage-registration and plausibility check is not yet available - see cambio description.
The complete belgian fleet will be equipped with board computers for mileage registration. Optimobil will produce its own bills. Bills still produced by cambio Germany due to technical problems.

About Chart of accounts and bookkeeping guidelines, Optimobil's bookkeeping has been implemented by Taxistop and with the Taxistop accounting software. They used statistic follow-up of the business; refer to cambio description.

For purchase of vehicle, Optimobil has used vehicles which are defined by cambio as system proved. Optimobil has purchased its own vehicles after contacts with belgian representants of the car manufacturer. Cambio has a support agreement for all mandators for the INVERS access technology.

For individual sales cambio provides room for advertisements on the website www.cambiocar.com. This is not yet available.

Cooperation with belgian insurer has been set up. The aim is to attain the lowest possible premium by a fair damage management. This cooperation has to be yet evaluated.

**Services on demand**

Printing and mailing of the bills will be done in Belgium, calculation of wages, social security premiums and taxes for the mandator’s personnel will be done in Belgium.

Basic training for 1 to 3 staff members has been given by cambio - a 'knowledge-multipliers' has been assigned, they should train new staff members.

The training is yet ongoing.

The results are satisfying although some parts still have to be done as software is not yet ready.

With the new cambio customer management software it will be possible for the call center to settle the general customer affairs (removal, billing matters, price consultancy, holiday reservations, etc.).

Optimobil cooperated with the bureau with whom cambio co-operates for the layout of marketing material. It can freely turn to the material that has been produced for cambio. They are satisfied of this cooperation Location maps and district maps will be produced by the belgian printing company which is responsible for belgian adaptations and the printing of the cambio material in Belgium. (Sint Joris).
2.1.8 STOCKHOLM

The main aspects to underline are:

- Car Sharing station in the city of Stockholm at Real Estate administration, Svenska Bostäder AB (Housing Company), Stockholm Vatten AB (Wastewater company), Stockholm MFO AB (develop and test pool) is in function.

- Car Sharing stations in the city of Gothenburg at Gatubolaget in two locations and at Gothenburg’s Electric Company is in function.

- Developing and fine tuning of the web booking system with high security and safe location for our web server and communication server with a battery backup, backup system etc. We are in contact with company in Gothenburg who shall be hosting our servers.

- Contact has been taken with Taxi Company (Taxi Stockholm) and Public transportation Company (SL) in Stockholm and find forms to make our idea of a “Transportation Card” for the users possible. Our aim is to involve Swedish Railways (SJ) to find a broader solution.

- Searching cooperation with Private Car Sharing Companies to find a common platform to work on and find common tasks of legal aspects, taxations and insurance on a local, regional and national level.

During WP 3 they shall develop and complete work with the Booking system, web server, communication server and the administration software. To secure the system we work closely together with Gatubolaget in Gothenburg. From the website [www.bilpoolen.com](http://www.bilpoolen.com) is where the user are making his/her Booking. Further more will the system make it easier for administration of the Carpool for example; more efficient administration with data communication (black box and communication technique) and electronic logbooks to provide administrator with Statistics and following-up system (vehicles, driving conditions, driver, environmental profit etc). The administration software shall create invoices (all means of transport on the same invoice) with or without V.A.T to adapt to a small or to a big Company.
There are two different ways to communicate in the system between the database and the vehicle:

- They are using short-range radio at the Real Estate Administration to provide the vehicle with actual booking status and the database with information. It is a more complex solution with installation of data box, radio receiver/transmitter in the garage and local PC/server on the local network with connection between Internet and garage.

- On the other installation they are using GSM as a communication carrier. It is easier for Customer with less installation locally.

The system will handle Smart Card technique with personal ID. The Smart Card releases the immobiliser in the car and it marks up the reservation with personal ID in the vehicle. Our aim is to have joint venture with Taxi and Public transportation Company to create a transportation solution. To accomplish that they will try to find common tasks and ways to handle economic task between all parts.

In Stockholm they have legal obstacle that they want to overcome. It is political question and it handles use of the city owned car fleet. For example they are not aloud to favouring a small group of people, it must be same offer to all inhabitants. Another is who to make the political system to sanction a pilot in a few locations so they can open it up for people living in the area. If our employees should use a Car in the system it will be a benefit of taxation. That is another task that they have to handle locally, regional and on a national level. They want to make the use of the car more efficient, they need the group employee and residents in the area reduce cost customer and company. This is one of the main tasks to overcome before an expansion is possible.

They shall measure each location for state of the art. A questionnaire will go to company and employee. They want to have status of the transportation in economical, behaviour and environmentally aspects. They will go from theory to practice. Therefore they are going to use same questionnaire twice a year. Then they can compare the results and see if the economic condition will be better. They will also see changes in behaviour pattern and if the changes are towards more sustainable society and finally is the environmentally impact lesser than before.

A synthetic description of the work is reported.
<table>
<thead>
<tr>
<th>Task</th>
<th>Start date</th>
<th>Stop date</th>
<th>Person in charge</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project start</td>
<td>1 may 2001</td>
<td>31 October 2004</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Preparing and testing the first Carpool at Svenska Bostäder</td>
<td>May</td>
<td></td>
<td>Mikael Johansson</td>
<td>Yes</td>
</tr>
<tr>
<td>Start of Svenska Bostäders Carpool</td>
<td>1 June 2001</td>
<td></td>
<td>Mikael Johansson</td>
<td>Yes</td>
</tr>
<tr>
<td>Meeting with “Stockholm Bilpool”</td>
<td>June</td>
<td></td>
<td>Mikael Johansson</td>
<td>Yes</td>
</tr>
<tr>
<td>ESG meeting in Bremen</td>
<td>4-5 June 2001</td>
<td></td>
<td>Jessica Ågren, Mikael Johansson</td>
<td>Yes</td>
</tr>
<tr>
<td>Installation in vehicle at Stockholm Vatten</td>
<td>July/august</td>
<td>July/august</td>
<td>Mikael Johansson</td>
<td>Yes</td>
</tr>
<tr>
<td>Installation in vehicle at and testing the system at Real Estate Administration</td>
<td>July/august</td>
<td>July/august</td>
<td>Mikael Johansson</td>
<td>Yes</td>
</tr>
<tr>
<td>Epomm conference in Stockholm</td>
<td>27 August 2001</td>
<td></td>
<td>Jessica Ågren, Mikael Johansson</td>
<td>Yes</td>
</tr>
<tr>
<td>Meeting with Stockholm Vatten</td>
<td>28 August 2001</td>
<td></td>
<td>Mikael Johansson</td>
<td></td>
</tr>
<tr>
<td>Meeting with Gatu- och Fastighetskontoret</td>
<td>28 August 2001</td>
<td></td>
<td>Mikael Johansson</td>
<td></td>
</tr>
<tr>
<td>Project meeting</td>
<td>11 September 2001</td>
<td></td>
<td>Jessica Ågren, Mikael Johansson</td>
<td></td>
</tr>
<tr>
<td>Meeting With Gatubolaget</td>
<td>6-7 September 2001</td>
<td></td>
<td>Mikael Johansson</td>
<td></td>
</tr>
<tr>
<td>Meeting With Taxi</td>
<td>23 October</td>
<td></td>
<td>Jessica Ågren, Mikael Johansson</td>
<td></td>
</tr>
<tr>
<td>Meeting with SL</td>
<td></td>
<td></td>
<td>Jessica Ågren, Mikael Johansson</td>
<td></td>
</tr>
<tr>
<td>Legal aspects</td>
<td>November</td>
<td>?</td>
<td>Jessica Ågren, Mikael Johansson</td>
<td></td>
</tr>
<tr>
<td>Taxation of benefit</td>
<td>November</td>
<td>?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inauguration of car-pool</td>
<td>November</td>
<td></td>
<td>Jessica Ågren, Mikael Johansson</td>
<td></td>
</tr>
</tbody>
</table>
3. **PART B: Specific Issue on Deliverable 3.1**

This second part will be focused on some of WP3 specific elements, foreseen by DoW for the Deliverable 3.1.

In particular the following paragraphs will show the state of work of the only partners involved in specific issue of WP that are:

- **Automatic Information Centre**

- **On-line-booking**: regarding a general description of the physical architecture of the booking system, the logical architecture of the technological system to manage the reservation and the others related operations, the technological support, the procedures from the user’s point of view with a description, in detail, of the overall procedure the user has to follow to perform a reservation in the different ways he can do it. Performances of the system and other relevant information.

- **Integrated Multimodal Planner**

- **Technologies for Public Mobility Station**: with the description of the organisation of the PMS in terms of different transport modes and their integration methods, a description of the specific role of car sharing in this framework and the technological system applied for information to the users or other application within the PMS.

- **Fare Model System**
3.1 Methodology

Tecmav, the coordinator of this WP, collected the contribution of each partner involved in these topics. Partners working within this tasks, using a detailed questionnaire produced by Tecmav, had to draw up a specific report in which were described the state of these elements. This is the questionnaire used by each partner:

Issue: **On line booking**

Partners involved: Bremen-Cambio; London-Urbigo; Stockholm

Items:

- General description of the physical architecture of the booking system (please describe the logical architecture of the technological system to manage the reservation and the others related operations. If the on line booking system is supported by an IT system, please show the schematic architecture of the system.)

- Description of the technological support. For each of the following items give a detailed description:
  - What kinds of communication techniques are supported? (telephone, web, wap, etc.)
  - In case of WAP application is it accessible with restriction to any specific operator?
  - Is there a specific call center or the booking operations are managed by the c.s. operator company?
  - How is equipped the call center or generally the reservation point?
  - The cars are equipped with on board equipment and how they manage the reservation?
  - How call center (or reservation point) communicate the data about the reservation to the on board equipment? What kinds of communication techniques are used? (SMS, GSM data, radio, etc.)
  - What is the media the customer uses to verify the reservation and to access the car? (i.e. smart card, keys collected from the cash, etc.)
  - In case you support phone reservation, is it supported by any kind of IVR technique?

- Procedures from the user’s point of view. Describe in detail the overall procedure the user has to follow to perform a reservation in the different ways he can do it. In particular give detailed answer to the following questions.
- What are the operations the user can perform through the on line booking centre (reservation, modification, cancellation, etc.) in its different forms (telephone, web, wap, etc)
- What kind of reservation is supported by the on-line booking system: ordinary, open-end, one way, instant access?
- How is performed the identification of the users?
- How do you manage the security aspects of the problem?
- The system manages the user’s preferences?
- The reservation process is guided by the system showing possible alternatives to the user’s requests in case of unavailability?
- What operation requires the release of the car? The user has to contact the booking centre? And, if yes, how?
- How is possible the cancellation of modification of a reservation. The procedure is the same used for reservation?
- The system allows to the modification of an active reservation? (i.e. the modification of the duration of the reservation on the same car currently in use?) If yes, how is it possible?

- Performances of the system.
  - Last time limit for ordinary, open end, one way reservation (the supported modes)
  - Last time limit for instant access reservation
  - Average time to complete a reservation operation through phone
  - Operating time of call center (or reservation centre).
  - How system manages “collisions of requests” on the same resource?
  - How the system manages the general problem of security related to web access?

Other relevant information.

**Issue: Technologies for Public Mobility Stations**

Partners involved: Bremen-Cambio; London-Urbigo

**Items:**

- Describe the organisation of the PMS in terms of different transport modes and their integration methods.

- Describe the specific role of car sharing in this framework.
• Give a detailed description the technological system applied for information to the users or other application within the PMS. In particular give answer to the following questions.
  - What is the technology adopted? Describe the equipment used in the stations (with particular respect to the interface with the user) and its eventual connection with other information systems. Describe the logical architecture of the system.
  - List and describe the functions, of the system, the services and the information offered by this technology to the users.
  - What are the information sources connected to the PMS and what kind of information they give?
  - What kind of physical and logical connection is used to connect the different information sources?
  - What kind of specific software was developed (or is under development)?
  - What kind of maintenance is necessary to update the information provided by the system?
  - How many users can simultaneously access the system?
  - The system gives also the possibility of a remote web access?

• Other relevant information

The document contains in particular these specific contributions:

- **Bremen-Cambio** regarding On-line-booking, Technologies for Public Mobility Station, Integrated Multimodal Planner.
- **London-Urbigo** regarding Integrated Multimodal Planner, Technologies for Public Mobility Station.
- **Stockholm** regarding On-line-booking.
- **Italian Partners** regarding Automatic Information Centre
3.2 Partners Contribution

3.2.1 Bremen- Cambio

1. ON LINE BOOKING (RESERVATION AND CAR-ACCESS SYSTEM BY CAMBIO)

1.1 Reservation
Car-reservation can be carried out
– by phone call (including direct call from the intelligent key locker at the stations)
– via Internet
– via WAP (from December 2002 on)

Different types of reservation tasks can be carried out:
reservation
- modification (also during active reservation)
- prolongation (also during active reservation)
- cancellation
- reservation in other cambio-cities
- ecs-reservation in other cities

Not (yet) available tasks:
- open end (to be implemented in the course of winter 2002/2003)
- instant access
- one way

Car access is only possible with preliminary reservation. Reservation can be carried out without any preliminary time limit (time steps: 30 minutes; minimum reservation period 60 minutes).
1.1.1 Reservation by phone call

Customers can dial one telephone number throughout the German Republic. To make a telephone reservation customers mention their customer number, desired vehicle, location and reservation period. Apart from the pure reservation tasks (reservation, modification, cancellation, prolongation) call center staff can also provide extra information on vehicles, accessories and locations. Furthermore, in case of damage or accidents the call center staff will note all elements, tell the customers what to do and notify the mandator’s (CarSharing customer company’s) fleet department. The service is open 24 hours.

During working hours, cambio staff operates the reservation service (see table for exact hours). Outside these hours and in peak hours, when the cambio personnel cannot take all phone calls, the reservation service is operated by an external call center that is staffed day and night.

<table>
<thead>
<tr>
<th>Internal:</th>
<th>Mo to Fri</th>
<th>Sat</th>
<th>Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td>07:00</td>
<td>08:00</td>
<td>09:00</td>
</tr>
<tr>
<td>End</td>
<td>22:00</td>
<td>22:00</td>
<td>21:00</td>
</tr>
<tr>
<td>Max. number of concurrent calls</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>External:</th>
<th>Mo to Fri</th>
<th>Sat</th>
<th>Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. number of concurrent calls</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

At the Call-centre reservations are carried out with the cambio reservation software Buze_ML

**Reservation Software BuZe_ML**

Features of this Software: reservation, subscription reservation, modification to reservation, ecs-reservation, cambio-wide reservation with own smart-card network information system, mileage registration, maintenance reservations, constant evaluations of customer's reservations in order to optimise the proposals, optimising combinations of reservations by administrative adjustments and several automatic evaluations.
Database interface to the INVERS (CUCM) data exchange program for the communication with lockers and vehicles. Access to the database procedures and database views for web applications, remote and LAN customers. Multilingual solutions are possible.

Reservation software Buze99ML is divided into an employee section for the usual reservation tasks (reservation, subscription reservation, modifications, cancellation, complaint, ecs-reservation) and an administrator section for customer management and fleet management by the mandators.

- **Employee section**
  All tasks linked to a customer call and that are normally performed by the call center employees are shown in the employee section. Apart from the features described below, complaint management is done in this section.

- **Reservation**
  Based on the customer’s wishes as to vehicle type, station and time the system either generates an available vehicle that meets all requirements, or - if not all requirements can be met - generates a list of proposals. The proposal management is an intelligent program that records the customer’s behaviour and registers both customer specified and general preferences. It then applies this information to generate a proposal list with possible reservations that stand a very high chance to come close to what this customer wants. This reduces the length of a customer call substantially.
  This proposal routine is also applied for other kinds of reservations, except for the technical reservations.

- **Subscription reservation**
  The subscription modules allow daily, workdaily, weekly and two-weekly reservations. Public holidays and periods in which no subscription reservation should be made, can be freely defined. In case the subscription reservation cannot be provided on a specific day, the system generates a list from which individual alternative proposals can be
queried. Moreover, 'soft' subscription reservations, e.g. for regular maintenance purposes, can be entered. These are automatically cancelled in case of a customer reservation (staff is in this case automatically notified).

- **Modification**

Existing reservations can be modified, (partly) cancelled, shortened or prolonged. When a prolongation is asked before the beginning of the drive and is impossible because somebody else has already booked the vehicle, a proposal list with alternative vehicles is generated. When the trip has already started and the customers insists on prolonging his use of a vehicle although it has been promised to another customer, the system will automatically book an alternative vehicle for the next customer and send him a note. The prolonging customer will have to pay delay costs.

- **Ecs-reservation/ general cross use**

Mandators can agree to mutual vehicle use: allow customers to use vehicles in another city than their home city. When both mandators involved use the cambio reservation program such a reservation can immediately be made with the mandator in the other city. The features „reservation“ and „modification“ are available here. The reservation is executed with a loan smart card that is provided by the sending mandator.

- **Cambio-wide reservation with proper smart card**

This part of the reservation software enables direct access to the fleet of another mandator. All features except subscription reservation are possible. This reservation is booked on the customer’s smart card. Unlike the general cross use, a cambio-wide reservation is also available on line.

Cambio is entitled to limit the cambio-wide reservation to those mandators that offer the same product from the customer’s point of view, that is those who use the „cambio“ brand and apply the same tariffs and general conditions. This is currently the case.
- **Information system**

Information buttons are available in all relevant reservation and drive managing data entry forms. These buttons provide detailed pictures and descriptions of vehicle classes and locations that are imported from the mandators’ local databases. This enables call center staff to give detailed information e.g. on alternative locations that are not (enough) known by the calling customer.

- **Last minute / Open End / Level of Service**

Not yet available at this moment

---

**Administration section**

As a rule the administration section is operated by the mandator’s staff members. The possibility to define access rights prevents the intrusion of unqualified personnel into sensitive sections.

Apart from the modules described below, this section also includes user and mandator management, assignment of actual and reservation objects, service and maintenance reservations and the import and export of customer data and network data.

- **Mileage registration**

BuZe99ML is compatible to the CUCM SMS communication system of INVERS. This enables an automatic registration of rides and of the number of kilometres driven. In case of deviations the mileage registration module allows manual evaluation afterwards.

- **Options**

The program offers a range of configurable parameters for all functions. Mandators can individually decide on the set-up of all important elements, from the definition of public holidays for subscription reservations over the fixation of evaluation times to the calibration of the program for the creation of proposal lists.
- **Evaluation**

Mandator related lists and export files can be generated for different reasons and according to configurable parameters: assignment to actual/reservation objects, reservation surveys, vehicles without assigned reservation object, evaluation of occupancy rates, lists of notifications and complaints, statistics on the wish-matching rates and missed turnover, list of current ecs-reservations etc.

- **Background functions**

Optimisation of reservation: with the appropriate set-up the Buze99ML program can produce an optimisation of the reservation planning in the key-manager-locations (electronic key lockers). This optimisation is based on a mandator-related configuration. In this case customers only know which key to take at the moment they open the locker as the system can freely interchange reservations between reservation objects of the same vehicle class.

This feature increases the matching rate in case of spontaneous reservations and delays as a contiguous reservation can be transferred to a free vehicle of the same vehicle class, if available. This feature can thus considerably enhance the occupancy rates of the fleet in larger locations.

**1.1.2 Reservation via Internet**

Customers can make their own on line reservation at [www.cambioCar.com](http://www.cambioCar.com) after having entered the pin code of their smart card. The reservation is processed within a secure SSL connection requiring the acceptance of cookies.

When the desired vehicle is not available in the reservation period, the intelligent proposal software will either generate a list of alternative vehicles that are available at the desired time or indicate the period that the desired vehicle is available. Moreover extensive information is presented on vehicle classes, locations or even on any current events that might concern the reservation.
Notification can also be processed on line. In that case customers see their messages after login. Customers, who do not have on line access to their personal messages, see a request to contact the reservation service.

As an alternative to the common on-line reservation, the customer can choose a “quick reservation” too. In this case, no additional information on locations, tariffs or car types are available and the entire booking is carried out in one reservation mask only.

1.1.3 Reservation via WAP

From December 2002 on, customer’s reservation can be carried out by cell-phone, dialing wap.cambioCar.com. This service will be optimised for a small number of widely spread types of cell-phones. No further description can be given at this state of the art.

1.2 Car access

Cambio applies the most experienced and most widely spread car access system “Cocos” from the German telematics provider INVERS.

A contact-less smart card is the key the car. Depending, on the station’s size, cambio applies both the stand-alone (card reading device behind the windshield) and the key manager version (card reading device inside a locker for up to 16 car keys).
Reservation Check by cambio:

Reservation data are transmitted via SMS to both key locker or on-board computer car access systems. The customer thus only gets access to the car if a valid reservation has been carried out for him. After his trip, the time and mileage data are forwarded back to the server.

2. Technologies for Public Mobility Stations

3. Integrated Multimodal trip-planner

Currently, due to perpetual technical problems from the supplier’s side, no trip-planner service is available from the cambio web-site anymore.

The former, efa-system based trip-planner was integrated into the reservation section of the cambio web-site and was available for the city of Bremen only.

It displayed the different modes to get to the cambio locations by public transport combined with walking.

Different time alternatives ...
Graphic display of footpath from home to tram

Graphic display of tram trip
The trip-planner could be activated either separately or as a direct information after having selected the desired cambio location. On the basis of the registered customer address data, the entire connection from the customer’s home towards the location was automatically displayed.

Although this service was implemented in a very comfortable way the use was very low. In 2001, only 241 customers made use of it. In 181 of these cases, no service was available due to technical problems that were not within the responsibility of cambio. In 2002, we decided to drop this service, because it was not at all matching the severe reliability requirements of the cambio quality management.

Moreover, the very low number of intends to apply this service showed, that apparently customers are already aware of the existing PT supplies and do not need any trip-planning information in their own city.
3.2.2 London-Urbigo

Issue: **On line booking**

- What kinds of communication techniques are supported? (telephone, web, wap, etc.)

Currently only telephone. However an on-line booking facility is being developed at the moment

- In case of WAP application is it accessible with restriction to any specific operator?

No WAP envisaged at the moment.

- Is there a specific call center or the booking operations are managed by the c.s. operator company?

All bookings currently managed by sub contracted call center working with IT suppliers – this is intended as a short term arrangement whilst the IT system is largely automated.

- How is equipped the call center or generally the reservation point?

Subcontracted call center with links to IT support.

- The cars are equipped with on board equipment and how they manage the reservation?

Reservations are relayed to cars 10 minutes before start of hire (until 25 minutes past the start of the hire) – this enables on board electronic to respond to radio beam from key fob of car club member.

- How call center (or reservation point) communicate the data about the reservation to the on board equipment? What kinds of communication techniques are used? (SMS, GSM data, radio, etc.)

SMS message

- What is the media the customer uses to verify the reservation and to access the car? (i.e. smart card, keys collected from the cash, etc.)

Currently reservation is confirmed on the phone, car is accessed by a radio key fob.

- In case you support phone reservation, is it supported by any kind of IVR technique?

Not currently, we are seeking a budget for the IVR quotation from IT.
- What are the operations the user can perform through the on line-booking centre (reservation, modification, cancellation, etc.) in its different forms (telephone, web, wap, etc.)?
Book, cancel, review current bookings, change a booking.

- What kind of reservation is supported by the on-line booking system: ordinary, open-end, one way, instant access?
Ordinary reservation.

- How is performed the identification of the users?
Member provided password

- The system manages the user’s preferences?
Yes

- The reservation process is guided by the system showing possible alternatives to the user’s requests in case of unavailability?
Next nearest vehicle.

- What operations require the release of the car? The user has to contact the booking centre? And, if yes, how?
Booking by phone, radio signal to car prepares the car for release for a period –10 min - + 25 min from reservation start. It can them be opened by directing the key fob at the car. The key fob sends a radio signal, which identifies the member to the car.

- How is possible the cancellation of modification of a reservation. The procedure is the same used for reservation?
Changes or cancellations can be requested up to 1 hour before the start of the booking period. It is the same process as the reservation process.

- The system allows to the modification of an active reservation? (i.e. the modification of the duration of the reservation on the same car currently in use?)
Yes, users can extend, if there is no conflict with following booking, during a hire. If a hire over-runs the distance that the vehicle is from parking station is sent to the call center.

Performances of the system
- What is the last time limit for ordinary, open end, one way reservation (the supported modes)?
Up to 15 minutes before booking period starts, ideally, but can be 1 minute.

- Last time limit for instant access reservation.
25 seconds.
- Average time to complete a reservation operation through phone.  
  20 seconds.

- Operating time of call center (or reservation centre).  
  24/7

- How system manages “collisions of requests” on the same resource?  
  Asynchronous message handling. That is each message is queued waiting until the  
  previous message has completed before commencing.

- How the system manages the general problem of security related to web access?  
  PIN number.

Issue: **Technologies for Public Mobility Stations**

- Describe the organisation of the PMS in terms of different transport modes and  
  their integration methods.  
  None of the existing stations is located on a public transport node. However this is  
  planned for the next stations in terms of proximity to London Underground Stations  
  or Local Railway stations. The only integration currently available is that of the I+  
  points, which provide information about public transport availability, timetables and  
  connections.

- The specific role of car sharing in this framework:  
  The stations will be specifically designed to integrate car sharing with public  
  transport infrastructure – with the car stations allowing for trips which cannot  
  conveniently be reached by the Underground / Rail system.

- The description of the technological system applied for information to the users  
  or other application within the PMS.  
  - What is the technology adopted?  
    This is only just in development. I+ points provide information about public  
    transport timetables and connections. I+ will also harbour an on-line car club  
    booking system, which is currently being tested. Once the system is deemed  
    satisfactory, it will be adapted and transferred to the I+system.

    - What are the functions of the system, the services and the information  
      offered by this technology to the users?  
      I+ is a community information system containing large amounts of local information  
      including transport information – for this project the key matter of interest is the
adaptation of the Urbigo online booking system onto the I+ system – this will be
tested after the online system is deemed to work satisfactorily.

- What are the information sources connected to the PMS and what kind of
  information they give?
  Can’t get an answer on this at the moment – need to leave blank.

- What kind of physical and logical connection is used to connect the
different information sources?
  Telephone lines using IP addressing.

- What kind of specific software was developed (or is under development)?
  Online booking system for car club. To be adapted to I+ point once the system
  operates satisfactorily.

- What kind of maintenance is necessary to update the information provided
  by the system?
  To be determined.

- How many users can simultaneously access the system?
  One at each station – there are currently some 40 stations in operation.

- The system gives also the possibility of a remote web access?
  Yes, under development
3.2.3 Stockholm

On line booking system

General description

The booking system from Mobilsystem AB, below named CS, is a system for a far going automatization of CS administration when it comes to utilize vehicles for organizations, companies and groups of peoples. The purpose of the CS system is to make it possible for people who are members of a CS administration to book via Internet or telephone.

The booking data is transmitted from booking system to the vehicle via GSM.
System

When a person wants to use the vehicle, the system checks the personal-ID, booking date and time.
There is also the possibility to choose the kind of car.

The system also checks the dialed mobile phone number before opening the vehicle door.

A smart card technique is used to identify the person and to release the electronic locking device. The computer in the vehicle registers driving data during used time of the vehicle. Collected driving data are used for statistics and invoicing.
After the data collecting, the system can also show the client the availability of cars and informations about who booked others vehicles.
A powerful control system is handled through system managers available for informations, help and what else the client would need, also complaints.

On line help available for the administrator concerning installation, set up web browser, registration of user, registration of garage, registration of vehicle etc.
All the manuals are in common pdf format.

Regarding the questionnaire:

Description of the technological support. For each of the following items give a detailed description:

- The communication systems in use are:
  - GSM (transmitting booking and drive data and opening of the vehicle door lock)
  - Telephone (voice call)
  - Internet (booking, unbooking, registration of driving data etc.)

- There is no wap in use.

- No special call center is in use. For web administration and system support the users can phone Mobil system or the project management to solve any problem.

- The computer onboard (look at picture below) registers the transmitted booking data. The data is transmitted via GSM data.
The media in use is GSM data (to get access to the car) and smart card (to release the electronic locking device).

Procedures from the user’s point of view:
- The user can make reservations, cancellations and modifications. The user can see statistics concerning his use of the system.
  The systems in use are Internet and mobile phone (GSM data and GSM Voice).
- The administrator of the local CS (i.e. Environment and Health Administration) can add and delete members, see statistics concerning the local system at different levels, create invoices, create smart cards, to alter passwords for user etc.
- The user can make a reservation online for a specified period of time. It is also possible to reserve the car for instant access from telephone or a PC.
- The system uses two identification:
  - mobile phone number
  - smart card with personal ID
- Personal ID systems (item 10) solve the security problem.
- The reservation process is guided by the system showing possible alternatives to the user’s requests in case of unavailability.
- When the user has confirmed the booking and the system has approved his personal ID’s the car is released.
- Cancellation is possible before the reservation starts. Modification is possible if the car is available. A new reservation has to be made.

- A modification of an active reservation is not possible at this moment (planned). If the used car is available a new reservation has to be made.

- The system allows to the modification of an active reservation instantly for ordinary booking.

Performances of the system:

- Last time limit for ordinary, open end, one way reservation: Instantly for ordinary booking.

- Last time limit for instant access reservation: Instantly for ordinary booking.

- Average time to complete a reservation operation through phone: this application is not yet in use (Planned in November 2002 – voice call)

- We have no operating call center. We use online booking and its open around the clock.

- The user can get information through the system that his requested reservation is not possible.

- About the general problem of security related to web access, we are using the standard ports for Internet communication which enable us to communicate direct with the database despite the existing firewall.
3.2.4 Turin

Description of the booking system

**System Architecture**

The car sharing system working in Turin has been realised following the nationwide architecture pattern defined by the ICS (Iniziativa Car Sharing).

ICS is a no-profit organisation sponsored by the Italian ministry of Transport, devoted to coordinate the development and deployment of the Car sharing systems in Italy.

![FIGURA 1](image)

**FIGURA 1**

Figure 1 shows the three main components of the Car Sharing System:

1. The Call center,
2. The Local Providers
3. The Fleet Automation.

The Call center interacts with clients in order to:
- Allow the booking of the available vehicles of all the local providers belonging to the ICS Circuit.
- Supply general information regarding the service.
- Supply information regarding service fares.
- Manage emergencies.
- Record and Manage customer complaints.

The **Local Providers** have the duty to:
- Make available and manage the fleet of vehicles.
- Manage customer contact applying the quality standards required.

**Fleet Automation**

It is the technological framework which supports the reservations, the “pick up” and the giving back of the car, the cost of the service.

Together with the three mentioned above, we would like to point out a fourth element integrated in the system: the Back-up and Support Centre. It over-sees and manages all the activities of maintenance and the requests of the Local Providers and the Call center regarding Hardware and Software problems.

The sub-systems are linked in the following way:
- WAN Connection between the Call center and the Local Providers.
- Internet connection for the WEB and WAP services.
- GSM connection between the Local Provider and the fleet vehicles.
The client can interact with the Call center through a telephone call or by means of two “self service” media:

- An automatic answering service (IVR) hosted at the Call center.
- WEB /WAP site (not developed yet).

The connection among Call center, Local Providers and Back-up / support Centre is obtained through WAN.

All the members of the ICS circuit are interconnected with a VPN (Virtual Private Network) realised on the WAN.
The connections have been created with the support of XDSL (Digital Subscribers Lines); some ISDN lines are used as a back-up fall system.

The peculiar features of the XDSL connections are the following:

- Connections “always-on”
- High Transfer Rate
- System Scalability
- Network Safety
- Easy Maintenance

Such features increase the overall performance of the system.

The communication between the Local Providers and the vehicles is based on the GSM technologies. The system could be easily upgraded by GPRS and UMTS technologies.

Description of the technological Support.

Call center

Introduction
All members of the ICS circuit use the services of the same Call center. The great part of the services are operated in the same way for all the operators, a small subset (of services) has been “personalized” in order to meet some peculiar needs of the operators.

Structure of the Call center
Application sw for the Call center has been implemented by Applet Java and provides the following functions:
Reservations: It is possible to make the bookings. The system procedures automatically fill in with the data of the client, using the information collected through IVR application. Each time the “Client data” are needed in the sw implementing one of the following functions of the call center, they are provided by the I.V.R. module.

- Monitoring of vehicle on board emergency
- Customer / Client Contact
- Customer Complaints
- Data Pool Functions: The Data Base managed by the various Local Providers and the Data base managed by the Call center are kept coherent and updated.

**I.V.R.**

The automatic answering service’s sw is able to display the relevant information regarding the waiting client. The IVR system works with the Data base of the local provider and provides the authentication (through the password) of the client data; these data are automatically transferred to the Call center operator. Such functions help Call center operators in saving a considerable amount of time to carry-out the procedures.

**On Board Computer – On Line Bookings And Communication between Call center and On Board Computer.**

The booking is taken by the operator at the Call center and memorized in the Local Provider System till ten minutes from the time of booking. The “booking” data are transferred from Local Provider Data base to the “reserved” vehicle through a GSM call to the vehicle on board GSM terminal. During the GSM call, on board computer
receives the information about the starting and finishing time of the trip, the client id plus other data useful to manage the service. After receiving the information the vehicle status switches from “Vacant” to “Reserved” and the small light (led) on the smart-card reader switches from green (free) to yellow (reserved). The vehicle is now available and ready to identify the client; the identification is done passing the client smart card in front of the Smartcard reader in the windscreens of the vehicle. After verifying the client’s data, the Board Computer unlocks the vehicle. Once the client is seated in the car, he/she confirms the data by inserting a pin code starting the run. The On Board computer stores the time, the data and kilometers from starting point- and by means of GPS traces the journey. At the end of the run the client inserts a specific code on the dash-board (console) then locks the vehicle using the Smartcard. The vehicle sends back automatically by GSM the data of the trip to the Local Provider, and switches again its state to available (green Light).

![Fig. 3](image)

The Board Computer is able to collect all the diagnostic information and to transmit (via E-mail) the respective information to the Back-up and Support Centre and to the Call center.

**CAR ACCESS (SMART CARD)**

A smart card is used as key to access the car; it is contact and contact less conforms to the ISO/IEC 1443 B standards and safety regulations ISO/IEC 7816-4 EEN726-3. Each smart card has an unique Pin Code known only by the client. The Card is personal and not transferable.
CUSTOMER PROCEDURES

The client’s point of view about the steps of booking and the use of Car Sharing.

**BOOKING SERVICE**

In order to take advantage of the Car Sharing service it is necessary to make a reservation through the Call center using the toll free number common to all the ICS Providers or via the internet web site developed by the Local Provider at the home city of the service required.

The Call center is operated on a 24 hour basis.

The booking requires:

- Subscriber’s Code
- City
- Withdrawal Parking address
- Vehicle type
- Date and time of withdrawal of the vehicle
- Date and time of giving back the vehicle
- Other requests and services.

If the reservations cannot be met the Call center operator will propose other solutions regarding different vehicles, time availability and parking areas until the customer would be satisfied.

Each vehicle is numbered by an unique number; the Call center confirms the reservation by sending the number of the “reserved” vehicle to the client. The valid time of the booking starts to the nearest interval of fifteen minutes.
It could be still possible to increase the duration of the service during the trip, if and only if the vehicle is available, for instance it has not been reserved by another client.

When the client needs a car for more than 48 hours, the reservation must be made at the Call center at least 1 working day before.

The cancellation of a booking or the delay in returning a vehicle causes a fine to bear regarding administrative costs as defined in the tariff of the Car City Club.

**Withdrawal of Vehicle**

Vehicles belonging to the Car City Club have their own parking facilities, each vehicle shows the City Car club logo on the windscreen and the fleet number near the license-plate.

The “reserved” vehicle is easily recognizable by the blinking “Reserved” orange light (led) on the Smart Card reader and it could be accessed drawing the smart card to the smartcard reader.

The vehicle cannot be used before the time of the reservation and the giving-back of the vehicle must be returned to its parking of origin.

Once inside the vehicle it is required to digit the PIN code on the Board Computer. If the Code is welcomed the client may take the key from the glove pocket.
If the PIN code is digitized incorrectly 3 times the service will be automatically blocked and the client will then have to exit and lock the vehicle with the card.

**STOPPING**
If the client needs to stop and get out of the vehicle all is required to do is to close the vehicle by remote control as one would do in a normal situation.

**REFUELLING**
Before giving back the vehicle if the fuel tank is less than a ¼ of a tank it is required to refuel at the nearest service station where the City Car Club is welcomed using the provided fuel card. The client is asked to contact the Call center furnishing the PIN code required to use the card to fill-up. The client is asked to insert in the Board Computer the mileage and the quantity of fuel.

**THE GIVING-BACK OF THE VEHICLE**
It is important to return the vehicle on time to the allocated car park. If by chance the vehicle is further than a determined distance of the car park, some (the number could be defined by the local provider) minutes before the Board Computer alerts the client. When the client finishes with the vehicle all is required to do is to press F1 key and then to confirm the operation with the F2 key.

**VARIOUS TYPES OF BOOKINGS**
The bookings made available by Turin's City Car Club foresees at the moment the only normal modality. The modalities "one-way" and "open end" are supported by the system, but not used yet.

**CLIENT PREFERENCE MANAGEMENT**
The system memorizes:
- The car-park to which the client refers to
– The requested vehicle category

**THE BOOKING PROCESS AND THE ALTERNATIVES PROVIDED BY THE SYSTEM**

If the resources available to the desired car-park meet the request, the system proposes the booking adhered to the client's request. Otherwise, the operator offers wide range suggestions to the client. These alternatives consider at first the hour of the booking then the vehicle category (if one of the "B class vehicle is not available the systems suggests one of the "C" class etc) and finally the parking.

**THE CANCELLATION AND THE MODIFICATION OF A BOOKING**

*Cancellation*

The client may cancel the booking even some minutes prior. A cancellation is however handled by the system in a different way if the cancellation is made before or after the limit 24 hours before the start of the run. If the booking is cancelled more than 24 hours before the beginning of the run the fee for the client is minimum. The client will be debited a small sum, and the City Car Club at the same time may put back the available car. If the cancellation is made within 24 hours the penalty for the client is calculated taking into consideration a fixed tax of half of the hour cost not used.

*Modification*

The client may modify the period booked before and during the run and since shortening of a run represents a cost for the City Car Club, a penalty is applied to the client, equal to half of the hour cost not used. In case of extending the run, the system first checks the availability of the vehicle then confirms or not the extension of the run. In this case the client simply pays the normal hour rate for the further period requested.
THE PERFORMANCE OF THE SYSTEM

BOOKING TIMES

Early bookings may be done by the client at any moment. In such situations the booking is sent to the car about ten minutes prior the official start time. From that time the client is free to start the run.

LAST MINUTE

The system is able to handle even the Last Minute Booking. The booking in this case starts five minutes after the call. The system communicates booking to the car that becomes active in two minutes. In order to be active this modality needs suitable configurations on the system.

MID TIME COMPLETION OF A BOOKING BY PHONE THROUGH CALL CENTER

A booking takes about two minutes if the first suggestion is accepted. In case the operator has to show alternatives, increases to three minutes. The modification procedures and cancellation takes about a minute time needed.

BOOKING MANAGEMENT CONCOMITANTS FOR THE SAME RESOURCE

Bookings are done by the Call center’s operators using the information of the DB of the Local Provider. The DB runs on "Oracle" and the access modality to the DB tables which contains data, are done considering any eventual collision.

OTHER AVAILABLE SERVICES

EMERGENCY HANDLING

The client assistance during driving is guaranteed on a 24 hours basis and all year round.
The Call center intervenes the call from on board vehicle in case of "emergency" and/or "information” of use.

**Emergency: impossibility of the vehicle use:**
The client must press the red button with the " receiver" icon on the dash-board (console) of the Board Computer.
The Call center answers and acts accordingly using the necessary procedures:

**List of Emergencies:**

- **Absence of the vehicle in the car-park at the moment of withdrawal:**
  Action: alternative vehicle or substitutive services (taxi)

- **Dirty unavailable vehicle.**
  Action: The Call center suggests a substitutive vehicle or taxi.

- **Accident or collision:**
  Action: The Call center provides if it is necessary to call 118, 112, the company that manages assistance and if necessary a taxi.

- **The breaking-down of a vehicle.**
  Action: The Call center switches on to send an operator of the company which manages the assistance in place, if necessary a taxi.

- **Tire Substitution.**
  Action: Call center switches on to send an operator of the company which manages the assistance.

- **Removal By Force.**
Action: Call center sends a taxi (charged to the client).

-Missing of the Key.
Action: Call center switches on an operator of the company which manages the assistance or a Car City Club operator.

- Absence of available parking.
Action: Call center authorizes the locking near the Car City Club park.

- Missing/Theft of the card or its damage.
Action: Call center closes the mission.

If it is impossible to use the Board Computer telephone, there will be made available to the client an alternative number to call for the assistance (Call center) by another telephone.

Information from the car: to avert any anomaly which doesn’t prejudice the use of the car:
As in the previous case the client calls from the car the Call center and refers about the following events:

- Declares to be Late or desires to extend the run. In this case start an administrative indemnity. This indemnity will be served to supply a substitutive service. To whom had booked the car in the period in which the car had been not delivered.

  – Board Computer Anomaly

  – Vehicle Anomaly
- Vehicle tampering

- Checked damages before the run/ after the run

- Missing/Damaged Smart Card

- Missing/Damaged or theft petrol card

- Lost Objects: Found/recover

- Checking of the cleaning of the car not adequate/requested further cleaning

- Inefficiency of the service

**COMMERCIAL SERVICES AND GENERAL INFORMATION**

The Call center operators are able to answer all general information regarding the various ICS circuit's towns; the most asked questions are:

- Queries regarding fixed costs (entry fee and subscription) and on the various costs (hourly and mileage) of the service.
- Localization of parking places and Provider's attitude to extend their number.
- Booking modality
- Main Provider office Location
- What the costs include (insurance cover, fuel, parking in ZTL etc)
- Interoperability between the various ICS town's circuit.
3.2.4 Genoa-Tecmav

For Genoa and Tecmav contribution see the attached document: “Interim Report-Fare System”.