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1 Executive Summary

In the future cities will need integrated traffic solutions, which provide a more effective organisation of urban transport and require mobility in an efficient, safe and economic way. The goal of the CityMobil project is to contribute to these solutions.

In the first sub-project of CityMobil concepts and tools, which are developed in the project, will be validated and demonstrated in a number of different European cities. Therefore three large-scale demonstrators have been chosen, which will present real implementations of innovative transport concepts. The demonstrators are located at the airport of Heathrow, at the new exhibition building in Rome and at the city of Castellón. Furthermore showcases and city studies are conducted in various cities of different European countries.

This deliverable describes the current status of work in the reporting period between 1st of August 2009 and 31st of January 2010 of the three large-scale demonstrators and the showcases and city studies. The progress of work is given and the schedule is compared to the progress. Deviations to the work plan and necessary adaptation of the time plan are stated. In the end of each section the next steps for each of the three demonstration sites are presented.

2 Introduction

The objective of the CityMobil project is to contribute to a more effective organisation of urban transport, resulting in a more rational use of motorised traffic with less congestion and pollution, safer driving, a higher quality of living and an enhanced integration with spatial development. In order to achieve these objectives advanced concepts for advanced road vehicles and passengers are developed. Further more new tools for managing the urban transport are introduced and barriers that are in the way of large-scale introduction of automated systems are removed.

In the first sub-project of CityMobil (SP1) those advanced concepts and tools are validated and demonstrated in a number of different European cities under different circumstances. Therefore three large-scale demonstrators have been chosen, which will present real implementations of innovative new concepts. These three innovative concepts will be implemented in the city of Heathrow, Rome and Castellón. The three cities were selected in the preparation phase of the project based on the assessment of technical feasibility, political support in form of Letters of Intent, a commitment to invest financially in the project and an availability of a local consortium consisting of public and private organisations, which had expressed commitment to the plans. Furthermore showcases and city studies are conducted in various cities of different European countries.

The demonstration activities are the core element of the CityMobil sub-project 1. Therefore the status and the progress of the demonstrators are monitored and reported on a regular 6 month basis.

In this deliverable the progress of the seventh 6 months in the period between the 1st of August 2009 and the 31st of January 2010 is described concerning the demonstrations and the showcases and city studies. The detailed description of each single demonstrator is given in the first progress report dealing with the first 3 month of the project from May 2006 to July 2006. The current status of the work and a comparison of the current status with the schedule is the main focus of this report. Necessary adaptations to the time plan as well as the next steps for each of the three demonstration sites are presented in the end of each section.

3 Progress of the large scale demonstrations

3.1 Heathrow

3.1.1 Current status of the work

It was reported in the last 6-monthly progress report that although all the infrastructure of the system was complete, the need to change the communications frequency from 2.4GHz to 5.1GHz has introduced a whole sequence of problems. The extent of these had not been fully appreciated when a prototype control system to operate at the higher frequency had been developed as an apparently successful bench system during the winter and spring of 2009. The problems of integration at this new frequency only became apparent when the full system was constructed and testing began. Solutions to these problems eventually necessitated the development of new software, and replacement of communications hardware on the vehicles. Naturally, this entailed a great deal of additional work, and considerable delay against the original schedule.

The past six months have been devoted to developing these solutions and making the necessary changes to both hardware and software. At the time of reporting, all problems have been overcome, and so far the system has operated satisfactorily with eight vehicles. The remaining vehicles are being added sequentially, but there is no reason to expect further difficulty, and within the next month the system should be handed over to BAA to begin passenger trials.

3.1.2 Comparison with time schedule

The communications problems have added at least six months' delay to the schedule. Instead of opening for public use at the end of 2009, the PRT system will begin trial operations with controlled groups of passengers in March 2010 and is planned to begin full public operation in May. The delays encountered are disappointing, but they are to be expected in the inauguration of an entirely new technology. Indeed, similar or worse delays are often encountered in the construction of conventional transport systems. In this case it should be noted that the delay is associated with a late change from the original specification.

3.1.3 Adaptations of work and time plan

The purpose of the CityMobil Demonstrator is to evaluate PRT against conventional forms of transport. The comparative survey of passengers using the current transfer buses between the Terminal 5 car park and the Terminal building was administered in March 2009, originally with the intention that exactly the same survey would be done with PRT passengers in March 2010. This is obviously not possible now, but it is not necessary to wait a full year until March 2011, because there is little seasonality in the pattern of demand from business travellers. However, it would not be sensible to carry out the survey during the main holiday season, when the profile of passengers using the system may be different from that in March. It would be possible to make the survey in June, but it seems wiser to delay until September, in order to allow time for any teething problems to be sorted. This still leaves ample time for the data to be analysed and the remaining Deliverables D.1.2.4.2 (Evaluation of passenger and operator satisfaction with the PRT system using similar metrics), D.1.2.4.3 (Comparison of the ULTra PRT system with the existing bus service from the passenger and operator viewpoints), and D.1.2.5.1 (Generalization of the evaluation results of trials and studies and transfer to other applications) to be produced before the end of 2010. This will lead to a delay in using these results in WP5.2 (Evaluations of demonstrations) just for the ex post data for the Heathrow demonstration (the ex- ante data has already been collected). Deliverables D1.2.6.1 and D1.2.6.2 on collision avoidance are in hand and will be available before May 2010.

3.1.4 Next steps

During the next three months the system will be trialled with control groups of passengers who will become increasingly similar to the untutored public, ahead of fully public operations in May. These public trials in themselves will produce useful information about passenger attitudes. The system will be bedded down, and any teething problems corrected during the summer. The passenger survey, which will follow precisely the form of the transfer bus passenger survey (D1.2.4.1), will be administered in September.

3.2 Rome

3.2.1 Current status of work

In the period here addressed the following activities have been carried out:

- In November and December 2009 ATAC run some preliminary civil works (wiring and cabling of the P1 car park). These preliminary civil works will reduce the time needed for the civil works of about one month.
- The call for tender for the civil works implementation has been finally published on 13th of January (it was expected in September 2009).
- The first cybercar has been fully tested in Bidart in August 2009. Because the delay in the civil works implementation also the 2nd cybercar will be fully tested in Bidart before the shipment in Rome. This will help to reduce the testing time in Rome.
- The certification procedure is on-going and in November 2009 the MoT asked for further clarifications about the Rome demonstration final design (D 1.3.2.2). The MoT asked more info about: Cybercar navigation system and related backup systems in case of malfunctions, braking systems and related backup systems in case of malfunctions, personnel safety procedures in case of emergency. Robosoft is drafting the document with all the information required and will also provide a detailed report about the results of the cybercar testing.
- The FMECA report has been translated in Italian and provided to MoT. Now we are waiting for MoT reaction on it.

3.2.2 Comparison with time schedule

Concerning the cybercars the construction it is on time, Robosoft completed the first cybercar and because of delay in the civil works implementation fully tested the vehicle in Bidart. The second one can be completed before the first half of February 2010 and will be fully tested in Bidart to save time after the shipment in Rome.

Concerning the certification process it is on-going and, as reported above MoT asked for further information on some aspects. This continuous exchange of information will help the certification procedure and probably save time for the test in Rome.

Concerning the civil works, cabling and wiring of P1 car park were done in November and December 2009 and this will help to save time later on. The call for tender for civil works implementation was published only on January 2010 and not, as planned, on September 2009 and nevertheless wiring and cabling were already done this will cause a delay of 3 months in the implementation of the civil works.

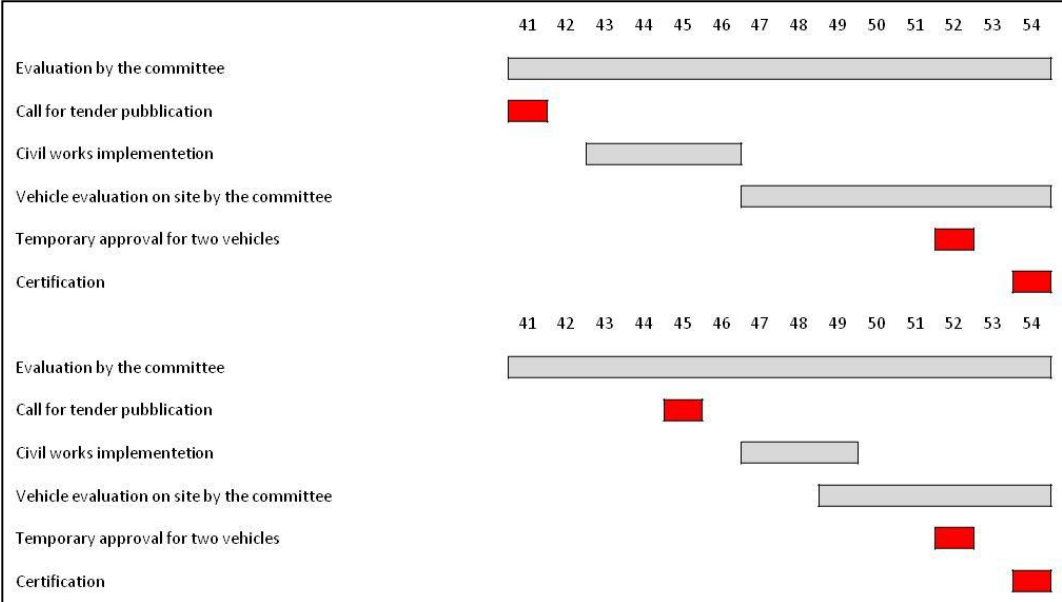
3.2.3 Adaptations of work and time plan

In order for this 4 months delay not to have influence on the project planning some measures have been taken to compensate for the time lost: the work already done by ATAC takes 1 month off the total time needed for the execution of the civil works. Another month will be saved by structuring the civil works so that there can be an overlap between testing on site and completion of the civil works. This structuring has been made part of the tender. The certification activities with the Italian MoT are progressing well. A later start of test activities is not expected to have influence on the date for issuing the temporary approval. The MoT has received the final design and will also receive the results of the tests that Robosoft has already carried out in Biarritz. The vehicles are as good as ready and can be made ready for shipping to Rome on a few weeks notice. The vehicles shipment in Rome is not easy to manage and for this reason some weeks are needed for this activity. Robosoft is using the extra time they have with the vehicles in Biarritz to do as much of the testing and preparing for operation in Rome as possible.

According to the measures above reported the Rome partnership is still confident to start operating with two vehicles in August 2010, with the decision of the MoT as the main critical point. The evaluation of the 6-vehicle system will start in May 2011, as planned.

A comparison between the work plans agreed in July 2009 and the new one is below reported and in both work plans the fully certification of the two cybercars CTS is still expected in October 2010.

Table 3.1 Comparison between the two work plans.



3.3 Castellón

3.3.1 Current status of work

The Castellón demonstrator is already in operation with good operational results and only minor problems encountered: The optical guidance needs high contrast between the white line and the pavement to operate properly, it has been found that at some places – mostly at curves- the pavement gets dirty with the rubber of the tires. These places of the lane have to be regularly cleaned for the optical guidance to work properly.

Within the following months, the ex-post data collection process has to be done in Castellón. To that end, during this period a data collection plan has been designed and reported in the deliverable D1.4.5.1. This document shows the different indicators to be measured in Castellón and how they will be analysed afterwards. Three different questionnaires have been developed in order to gather the required information:

- Questionnaires for users. With a target of 100 samples
- Questionnaires for drivers. With a target of 10 samples
- Questionnaires for phone interviews. With a target of 300 samples

It has been planned that the necessary surveys and phone interviews will be collected between February 16th and February 26th, including the weekend – to recover ex-post data from all kind of people and not only students-. These data will be analysed, afterwards and the results will be included in the corresponding document.

3.3.2 Comparison with time schedule

The administrative work in WP1.4 is still pending some inputs and reactions from the GVA. As a result of this some WP1.4 deliverables are still delayed.

3.3.3 Adaptations of work and time plan

Two new persons were assigned as new contact points between the GVA and the project consortium. This has resulted in an improvement of the communication flow quality with the GVA so that the pending deliverables are already being prepared with the information provided by these persons. Some of those documents have already been finalised.

3.3.4 Next steps

Some pending documents are still under preparations and will be finished during the next months.

4 Progress on showcases and city studies

4.1 Current status of work

Work package 1.5.1

Title: Studies and demonstration management

Work package leader: INRIA

Partners: CRF, DITS, GEA

During the reporting period, the showcase in Trondheim was executed. The relevant data was collected and is under study by DITS. Around 200 surveys were completed. An exhibit, designed by the CityNetMobil project, was presented for the second time during the Trondheim showcase. Seven posters and the final cybercars video were presented in this exhibit. All the material, including the CityMobil brochures, were translated to norwegian language.

During the reporting period the preparation for the Second Advanced City Cars showcase execution (Orta San Giulio) (D.1.5.5.3) was started with the actual city and site selection. Novara, Italy, came up during this reporting period as a candidate to host the second Advanced City cars showcase, in order to replace Genoa. Novara presented another city in the region, Orta San Giulio, whose capability to host a showcase was explored by CRF. A visit to Orta San Giulio was organized during the reporting period to evaluate the potential site and the commitment of the local authorities. During the visit it was decided to carry on the showcase in Orta. The planning and details of the showcase will be defined in the next reporting period.

Work package 1.5.2

Title: Preparation of the cybercar showcase

Work package leader: INRIA

Partners: Robosoft, TNO

During the reporting period, the Recommendation reports for the operation including safety issues of the Trondheim (D1.5.2.5) showcase, which were completed in the previous reporting period, were implemented during the showcase execution.

Work package 1.5.5

Title: Showcase execution

Work package leader: INRIA

Partners: CRF, TNO, TRW, GEA

During the reporting period, the Third Cybercars showcase (Trondheim) (D.1.5.5.3) was executed.

The site and vehicle setup of the showcase were done from August 18th until August 24th 2009. Several events were organized in parallel in order to advertise the showcase among the public. A press conference with the presence of the County Mayor was organized on August 25th. A conference titled *A driverless future*, directed mostly to Norwegian urban planners, was organized on August 25th and 26th. The programme of this conference included a visit to the showcase. The showcase public operation started on August 25th and ended on August 30th. Some 20 assistants to a conference on ITS and Road safety, not linked to the showcase, also visited the showcase.

The showcase operation represented an on-demand cybercar service over a line, with 3 stops linked by a single path over which the vehicle ran back and forth. The users had the possibility to choose between two possible destinations on the vehicle's touchscreen. When the destination was selected and confirmed, the vehicle travelled non-stop to the selected destination. Before starting the trip, the users were also requested to indicate the number of passengers per trip. This data was recorded in a log file to produce statistical information about the use of the vehicles during the showcase. During the trip, an audio recording explained the function of the vehicle in Norwegian language. At the end of the trip, a recording requested the passengers to visit the tent in order to answer the survey.

Figure 1. Images of the showcase opening



As mentioned above, an exhibit, designed and produced by the CityNetMobil project, was presented for the second time during the Trondheim showcase. The exhibit represents a “Street of the future”, where all kinds of transportation systems share the public space with pedestrians and cyclists. Seven posters and final version of the video were prepared for this exhibit. Figure 2 shows a 3D view of the exhibit, and Figure 3 shows a picture of the exhibit during the visit of the assistants to the conference *A driverless future*.

Figure 2. 3D view of the CityNetMobil exhibit



Figure 3. View of the CityNetMobil exhibit



4.2 Comparison of the current status with the time schedule

All tasks have been completed without delay.

After the decision of moving the show case to another site, the plan has been recovered with the new candidate, Orta San Giulio, waiting for the final approval of the proposed organization. The new show case is in line with the updated plan.

4.3 Adaptations of work and time plan, if necessary

Since the city where the Second Advanced City Vehicles Showcase (WP1.5.1/1.5.3/1.5.5) was already selected, the expected delay is likely to be recovered. The work and time plan has been already updated (DoW4 new releases).

4.4 Next steps

The main next steps are the execution of the Second Advanced City Vehicles Showcase. Now that the city of Orta San Giulio has been selected, a *Recommendation report for the operation including safety issues* will have to be done, as a replacement to that of Genoa (D.1.5.3.2b), which is no longer valid. The definition of a final program for the showcase has to be proposed and agreed with the authorities of Orta San Giulio.

Due to some delay in the other financing sources of the small demo in La Rochelle, external to CityMobil, the start date of the small demo was shifted to June 2010. This has also delayed the preparation of the modifications to the Description of Work. This will be prepared during the next reporting period, and shall be included in the Description of Work to be approved by the next General Assembly.