Measure title: **Infomobility Centre and Mobility Marketing in Coimbra**

City: **Coimbra** *Project:* **MODERN** *Measure number:* **04.02**

Executive summary

This measure comprises the creation of an important mobility centre in Coimbra that integrates all the transport operators as well as the development of a planning tool for the Municipal Public Transportation Services of Coimbra's (SMTUC) internet website (i.e., RUMOS – **R**otas **U**rbanas em **MO**bilidade **S**ustentável - Urban Routes in Sustainable Mobility) allowing any user to know how to travel in an optimised way by defining the desired temporal, economic or sustainability criteria.

The innovative aspects of this measure – the use of new technologies in the trip planner based in a geographic information system (GIS) (whose acquisition has been useful for other tasks in SMTUC, such as the network planning), and the implementation (one of) the first mobility centre in Portugal – are very significant at national level.

These innovations are very relevant because they help to overcome an old problem in Coimbra that is the lack of integrated information on multi-modal trips and thus allow users to take full advantage of the support that the Coimbra Municipality has given by financing the creation of tickets combining different transport operators.

The demonstration of the measure within the CIVITAS MODERN period showed that this measure is feasible at a relatively low cost in comparison to those of other PT operations.

The demonstration of the measure resulted in a short period of time in an increase of the awareness level of population, and also in the increase of the acceptance level of the users and in the level of the quality of PT service. The results demonstrated that the acceptance level of the measure is very high (95% in 2011) and 95,1% were satisfied or very satisfied with the service provided by the Infomobility Centre in 2011. The acceptance level of the public transport operators was 100% in all the surveys carried out.

In 2011 the Infomobility Centre registered 34.040 customers (an average of 2.836 per month). There are 4688 accesses to "RUMOS" trip planner per month, greatly exceeding the 1500 accesses that were initially foreseen.

With the implementation of the measure we learnt that:

- Risk management is important taking into consideration that licensing procedures, linked to the centre location (in the historic centre), could be time a consuming activity, Rigorous planning and follow-up of the process is fundamental;
- The involvement of the municipality is critical to achieving commitments among all stakeholders, as well as in the negotiation process concerning the financial issues;
- Promoting meetings about good practices on sustainable mobility and urban development is of paramount importance in order to involve all the stakeholders;
- It is essential in the implementation of a trip planner to involve the developers of the systems during all the stages to know exactly what is needed and required in the initial specification stage, including system interoperability, which is increasingly important as more PT operators are included within the system.

A Introduction

A1 Objectives

The measure objectives are:

(A) High level / longer term:

- To improve the city air quality.
- To decrease city traffic levels.

(B) Strategic level:

- To increase the number of trips made in a sustainable way over the use of private car, in particular trough better information and the promotion about new mobility services and PT, with a special attention to female public.

(C) Measure level:

(1) To establish a mobility centre facility in town integrating all transport operators in order to reach at least 75% of PT operators accepting the measure and 80% of PT users accepting the measure.

(2) To implement a public web service, which will provide an online trip planner interfaced with the SMTUC automated vehicle management (AVM) system that provides the data updates, in order to surpass 1500 accesses per month to the RUMOS trip planner.

(3) To promote mobility marketing.

(4) To increase 1,5% percentage of female passengers transported by the SMTUC.

A2 Description

In the scope of this measure it was implemented an important mobility centre in Coimbra that integrates all the regional transport operators, answering the diverse transport needs of the population and giving them a capable and ready information on the most sustainable way of travelling.

This is because the mobility centre includes not only ticket sales and an information area about transports, but the centre has also became a permanent forum to exchanging ideas on sustainable mobility, allowing for more personalized assistance to the general public. This forum has been used for the launching of mobility campaigns and the venue of related initiatives, including those of other entities.

The Infomobility Centre has been installed in a new and modern place located in the City centre, near the railway station and the main interfaces of all PT operators.

The management of the Infomobility Centre is carried out by SMTUC – the public transportation service dependent on the Municipality and functioning as municipal mobility entity – that also

supports all the costs with the centre's personnel - helped by CIVITAS funds during the MODERN project. These facts helped achieve a good partnership, involving all the local public transport operators, and to increase the overall sustainable of the mobility operations. The Centre renting was supported by the other PT operators (3 regional bus operators and the national railway operator)

The Centre runs at least with 2 staff members simultaneously from 7:30 to 19:30 (Monday to Friday) and one from 8:00 to 13:00 (on Saturdays) that sell and reload e-tickets and e-cards, customise new e-cars, provide information about the services, namely trough promotional and informative flyers / leaflets, and help in the organization of events hosted at the Centre. These staff members had training to be able to provide information on all PT operators and to evaluate and monitor the functioning of the centre (including the attendance of the Centre by each PT operator and task, as well as analyse customer suggestions and complaints).

The centre has 3 attendance points voted for any PT operator (fig.1) with equipment for sale and re-load the e-tickets and e-cards, as well as the customising of the new e-cards or the consultation of trip planners. The lobby was also equipped with a Queue machine, an Automatic Vending Machine, a display to show promotional videos and exhibitors and shelves for promotional material (leaflets / flyers).

Fig. 1 – The Infomobility Centre with 3 attendance points (left), the Queue Machine (centre) and an Automatic Vending Machine (right).

To guarantee the quickest and highest quality information possible in customer travel information, either at the Infomobility Centre or at any other place, a tool was launched in the SMTUC's internet website allowing any user to know how to travel in an optimised way, defined by rapidity, costs or sustainability criteria. This included also geo-reference cartographic information.

For this reason the online trip planner RUMOS (**R**otas **U**rbanas em **MO**bilidade **S**ustentável - Urban Routes in Sustainable Mobility) was based on a geographic information system (GIS) whose acquisition has been useful for other SMTUC tasks , such as the network planning.

This application, developed by Critical Software, a CIVITAS MODERN partner, allows the user to insert the origin or destination places by typing places names, by choosing interest points or bus stops through a list or by indicating directly the places in the City map. The user can also choose date and hour, as well as several other parameters to customise the travel, such as the travel transport mode, the travel specifications (more economic, quicker) or the duration of the pedestrian travel.

The resulting route will pay attention to several criteria for optimising the travel (quickness, economic or ecological costs, pedestrian efforts linked to the ground characteristics, …) and the output is the

travel description that includes streets, bus stops, bus lines, travel costs and CO^2 emissions. The route is also displayed in the City map.

Concerning the RUMOS SQL Database structure, it is composed by different geographic data elements, which are merged into a unique Geographic Data Base (GDB). It is compose by the *TELEATLAS MultiNet* digital mapping, *the Network Dataset* and the individual bus information, such as departures, arrivals, duration and estimated distance throughout specific time tables for different seasons of the year.

The Centre personnel make also the monitoring of the RUMOS trip planner (mainly the data base consistency and the failures during the test phase of this system).

B Measure implementation

B1 Innovative aspects

The innovative aspects of the measure were:

- **New conceptual approach, nationally**
    - In Portugal there is no tradition in using Mobility Centres to facilitate the intermodality and interoperability of citizens mobility needs, or to promote sustainable mobility. “Coimbra Infomobility Centre” is, together with the “Oporto Mobility Shop” integrated in the CIVITAS ELAN measure, are only mobility centres in Portugal.
- **Use of new technology/ITS, nationally**
    - Optimisation of geo-referenced travel planning through the online trip planner RUMOS, with a multi-modal option in the choice criteria (motorized or non-motorized ways) and the possibility of enhancing the solutions that most contribute to sustainable mobility, with the information of the price of the trip using Public Transport and the information about CO2 emissions (comparatively to the trip in a private car).

B2 Research and Technology Development

The research and development activities have been carried out to set-up the Infomobility Centre and to develop the RUMOS trip planner and could be summarized as follows:

- The conception and definitions of technical specifications of the Infomobility Centre, in relation to the above mentioned objectives has been made by SMTUC, the urban public transport operator. To enhance the knowledge on this field, it has been carried out on-line research to analyse other mobility centres, as well as contacts with experts and the visit to the mobility centre of Genoa, The site coordinator and the measure leader also participated in a CIVITAS ELAN workshop on mobility shops. Technicians of SMTUC participated in the design of the centre and of the logo and defined the trade mark. Some achieved requirements defined for the centre were:

    - The specifications established that the placement of the new Infomobility Centre should be in the historic centre in new installations instead of the remodelling of an existing point of sales.
    - The space should be pleasant and modern to improve the image of PT for the public, in particular for young people.
    - The Infomobility Centre should be able to integrate the information and the products of all the local PT operators and sustainable mobility strategies in general, using modern communication tools, as well as to provide conditions to host events and campaigns.

- Several meetings and work sessions have been made with the other PT operators to define the functionalities of the centre and the repartition of costs (SMTUC support all the costs excepted the Centre renting, that is supported by the other PT operators).

- The development of a public web service with RUMOS (**R**otas **U**rbanas em **MO**bilidade **S**ustentável - Urban Routes in Sustainable Mobility) was made by Critical Software, a CIVITAS MODERN partner. The work undertaken in this task was the research of the best technologies to achieve the objectives, including the analyse of similar products, several work sessions with SMTUC technicians to define the best solutions and specifications, the development and delivery of the trip planner, the tests and corrections of the first versions of the application, the implementation of the RUMOS back-office and the delivery of the application users manual. The main aspects of this work can be summarised as follows:

The objective of the research and development of the "RUMOS" was to provide a user-friendly trip planner (WEB Interface) offering *optimized journey information for Coimbra's Public Transport users*. The success of the innovative deployment of the RUMOS software application has been to allow the end-user to select the best journey information according to his needs - *POWER TO THE USER* - depending on the following decision criteria:

- Environmental impact assessment, contributing to a greener environment, by presenting the direct comparison of the Carbon Dioxide (CO2) emissions between public transport and the use of the automobile - necessary in the competition against growing private car usage;
- Walking cut-off threshold option with respect to the end users with reduced mobility;
- Optimization of the bus routes supported by dynamic timetables (each bus stop follows-up a predefined daily schedule according to the defined user date);
- Reduced mobility criteria with respect to the optimization of the final route based on both pedestrian effort (kJ) and distance (m);
- Maximum number of end-user required "transhipments / interchanges" with respect to the whole planned journey.

The key research was focused on using a real case study to provide an extension to currently existing GIS Framework APIs and solve the "*MultiObjective Shortest Path Problem*".

This required a software solution based on an optimization of the decision algorithm for the construction of the network (bus and pedestrian route), accordant to the "state of the art" - Combinatorial Optimization.

Finding such a solution and quantifying which one is the best to be exposed to the end user was the major challenge in providing a solution to this "*MultiObjective Optimization*" problem.

The first approach to this problem has used the *monocriteria* model, whose optimal solutions have not met the requirements of the SMTUC users. Next, we have tried the *multicriteria* formulation which fit customer expectations.

The criteria used in the optimization process were, essentially, the distance, the travel time, and the number of *transfers*. However, other criteria should be included at a later stage. The optimization of the number of transfers required further investigation because the properties of the *multicriteria* shortest path problem, involving distance and travel time, were not valid when using the number of transfers. Therefore, an adaptation of the dominant concept was proposed.

During the research process, criteria such as pedestrian time and pedestrian effort where included. The total number of criteria increased from two to four simultaneous optimized objectives,

allowing us to define the best path, just by balancing the criteria chosen (number of transhipments, total time, pedestrian time and pedestrian effort) so that we can establish a more user friendly result. The paths are then selected by the emphasis that each user gives to a single criterion.

The fig.2 shows the architecture of the system:

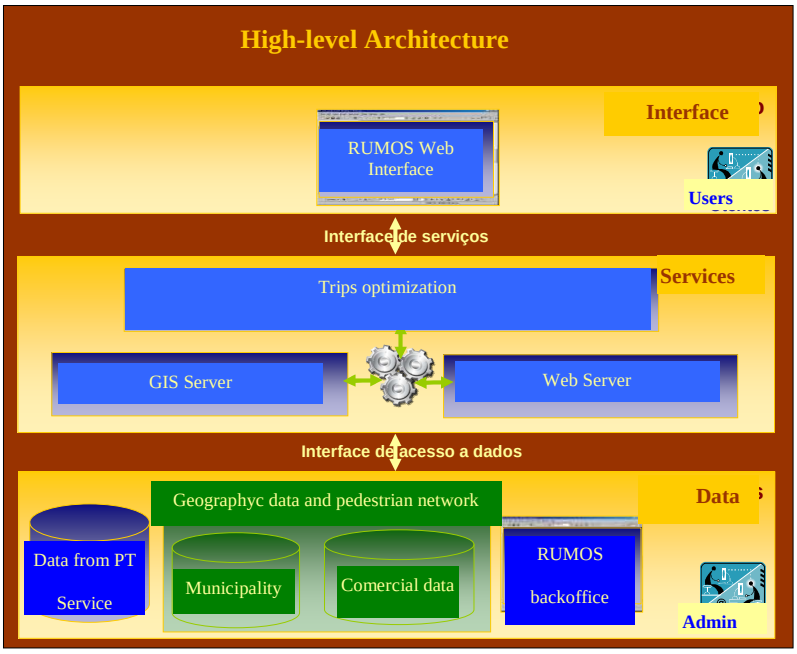


Fig.2 – The Architecture of the RUMOS Trip planner

The ***WEB Interface*** provides the abstract end-user functionalities to interact with the application. Concerning the ***RUMOS SQL Database*** structure, it is composed by different geographic data elements, which are merged into a unique Geographic Data Base (GDB). It is compose by the *TELEATLAS MultiNet* digital mapping, *the Network Dataset* and the individual bus information, such as departures, arrivals, duration and estimated distance throughout specific time tables for different seasons of the year. The *Network Dataset* is built with a GIS framework (ESRI) capable of providing the required data for a structured network topology to be extracted and built – the ***RUMOS (SMTUC/Coimbra) Network*** (fig.3), which is a structured data input to the developed software, decision and optimization, algorithm.

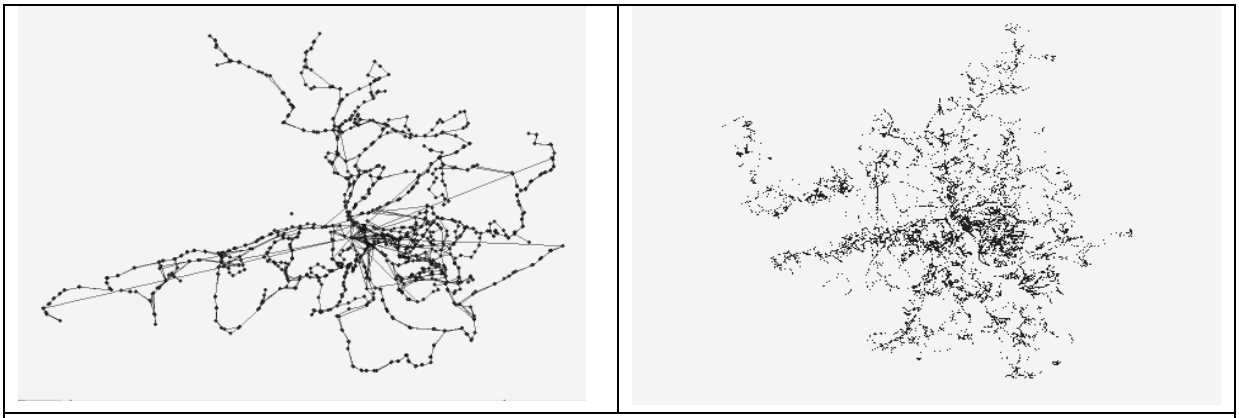


Fig. 3 – *Shape Files* of SMTUC PT Routes and Bus stops (Left) and of the streets network of Coimbra municipality (Right)

The maintenance of the data is ensured by a set of tools – ***the Back-Office***, providing direct access for the system administrator to work on the database avoiding any data inconsistency.

B3 Situation before CIVITAS

Before CIVITAS Coimbra had 7 public information offices (excluding the train station), four of them owned by the Urban Public transport operator (SMTUC) and the others owned by each of the private public transport operators.

Essentially, these offices work with information and ticket sales of each individual operator, except for the combined pass involving the SMTUC and the other operators. Concerning information, the public attendance was registered only to collect suggestions / complaints and to provide operator specific information.

However, part of the population doesn't use public transports due to the general lack of information, a low level of overall awareness of each individual possible contribution to sustainable mobility, as well as a lack of knowledge about the different options in using local public transportation.

From this aspect, it is necessary to give special attention to the increased difficulty in the women's mobility needs. This happens also because the majority of women have specific displacements related to the family duties, a fact resulting from a traditional Portuguese family structure.

Coimbra Municipality has supported, namely financially, the population's needs for inter-operational and multi-modal displacements, specifically through the provision of several products combining tickets between the different bus operators and SMTUC and between SMTUC and the railway operator. However, this strategy does not totally result because each public office does not provide general information – the information is mainly about the individual operator. The citizen has difficulty accessing all the information about his mobility options, mainly when they need to use several modes of transport or operators. Before CIVITAS these citizens needed to move through several sales points in the City to have information about each operator or purchase combined fares.

For this reason, there is a lack of a mobility centre which is able to integrate all the mobility information and products of all the operators as well as the existing sustainable mobility strategies using modern communication tools. This would allow citizens to take advantage of all the information available and would simplify the consultation by each individual citizen. Thus each citizen could be viewed as a unique consumer or a member of a group sharing the same mobility requirements (e.g., professional working class, students).

Also the 7 existing sales points are very narrows, so without conditions to host more equipment resulting of the mix of all PT operators functionalities in a common place or to host mobility events that could sensitise the citizens for the best mobility practices (promotional campaigns, public presentations, workshops, meetings with users associations / stakeholders, …). These facts advised the Municipality and SMTUC to opt for the implementation of the mobility centre in a new facility which was renewed and is located in the City centre.

As a catalyst of the process of the implementation of the Infomobility Centre, CIVITAS allowed the inhabitants of Coimbra region to benefit sooner of the advantages provided by the centre, namely those provided by the association of all the PT operators in the Coimbra region – all the information about mobility and the sale of tickets of all the PT operators provided in a single place – and the possibility to concentrate the promotion and launching of mobility actions and the hosting of campaigns and press conferences. This will allow for a better and more efficient intermodality and interoperability.

B4 Actual implementation of the measure

The measure was implemented in the following stages:

Stage 1: Conception and definition of technical specifications for the Infomobility Centre *(October 2008 – February 2009) – The concept of the mobility centre was developed until December 2008 according to the following lines:*

- *Initial planning and conception of the centre, according to the sketch of architectural project:*
  - *Selection of the logo and the trade mark "Centro de Infomobilidade" for the centre.*
  - *The new Infomobility Centre should be located in the historic centre (fig.4).*

Fig. 4 – The Infomobility Centre is located in the historic centre

  - *The space should be pleasant and modern to improve the image of PT for the public, in particular among young people.*

- *Definition of the functions of the centre. Namely, the Infomobility Centre should be able to integrate the information and the products of all the PT operators and the sustainable mobility strategies in general, using modern communication tools.*

- *Option for installing the Infomobility Centre in a new place instead of the remodelling of an existing point of sale because the objectives concerning MODERN Project require more features than those provided and the several new functions couldn't be adapted to the space existing in the other points of sale.*

In February 2009 a document with the Infomobility Centre concept was delivered.

Stage 2: Purchase and installation of the Geographic Information System (GIS) *(October 2008 – October 2009) – The following activities have been carried out:*

- *A pre-evaluation of the technologies / specifications and costs was requested to ESRI-Portugal, Tele Atlas Multinet-Portugal and NAVETEQ.*

- *Research on open source products with GIS functionalities and tests to their operability were carried out on the internet.*
- *The purchase of the GIS and collections of data needed for the "RUMOS" was achieved with the option for no open sources products, taking into consideration, the issues dealing with the integration with the municipality GIS system and existing cartography.*
- *In August 2009 the installation of test's software concerning the GIS began and in October the definitive version was installed.*

Stage 3: Infomobility Centre Installation *(March 2009 – September 2009) – As specified the centre was installed in a new place that was renewed and hosted all PT operators (Fig. 5). For this propose the following activities were carried out:*

Fig. 5 – The Infomobility Centre – the exterior (Left) and interior view (Right)

- *Process of urban ordinance licensing of the new local for the Centre.*
- *Set up of agreements with all local PT operators.*
- *Building interiors:*
  - *Work concerning adjustments in the front door, survey and settlement of pavement on the sidewalk to the existing ground level.*
  - *Work for demolition of walls and for construction of news walls, ceilings, and floors, including thermal and acoustic isolation.*
  - *Work concerning the construction of WC's and assembly of its accessories, including the equipment for the mobility impaired.*
  - *Work of carpentry.*
  - *Painting and decoration of interiors.*
- *Painting of the building's façade.*
- *Application of PT operators' logos and CIVITAS' logo on the building's façade.*
- *Registration of the Infomobility Centre's logo;*

- *Purchase and installation of furniture and several equipments;*
- *Installation of the equipments concerning other operators;*

Stage 4: Training of Infomobility Centre Personnel *(December 2008 – December 2009) – The initial training (without claim for funding within CIVITAS) took place before the start of the project and in December 2008.*

On 3rd July 2009, in the City of Porto, the Coimbra Site Coordinator of MODERN project made a presentation of the Infomobility Centre of Coimbra in the training workshop "Mobility Shops: what services and for whom?" integrated into one of the activities at the CIVITAS ELAN Porto meeting. The workshop integrated presentations of several cities, including ELAN Project cities, along with the presence of European and national experts on the field. The objectives were focused on the examples of success factors based on past experiences and the objectives and targets of Centres implementations projects. The contents of this training session will be transmitted to the workers of the Infomobility Centre in Coimbra by the Measure Leader that has also attended the training.

A new training for the Infomobility Centre personnel was given in September 2009, just before the opening of the Centre and another important training of Infomobility Centre personnel took place at the start up of the "Beta" version of RUMOS.

Stage 5: Research and development of a public web service with RUMOS (Rotas Urbanas em MObilidade Sustentável - Urban Routes in Sustainable Mobility) *(October 2008 – December 2009) – Development of a public web service with RUMOS (**R**otas **U**rbanas em **MO**bilidade **S**ustentável - Urban Routes in Sustainable Mobility) that provides online trip plans. The research and technical development work was, namely:*

- *Identification of the end user requirements for the infomobility solution and assessment of the necessary preparation activities and support infra-structure and tools.*
- *A specification report was provided stating the identified technology, the necessary data and an overview of the envisaged solution.*
- *Establishment of the RUMOS cartographic basis.*
- *Test with initial models of software.*
- *It was analysed the advantages and disadvantages for the users of the link between "RUMOS" and the automated vehicle management (AVM), to allow real time trip plans or only to obtain data (always PT network and time tables changes). Between the following 2 solutions it was decided by the last hypothesis:*
    - *A link to provide real time information directly to the users (with the advantage of being considered the real conditions but with the disadvantage of a continuous adjustment in the conditions. This solution is a disaster to most of the users, because they usually consult the service in advance)*
    - *Or a link to provide PT network information, including historical data to the calculation of more accurate trip time (with the advantage of producing more consistent information with the only disadvantage of not provide real time information).*

- *The "first" version of the RUMOS software tool according to the specified system requirements and architecture design was completed and released (Fig. 6);*

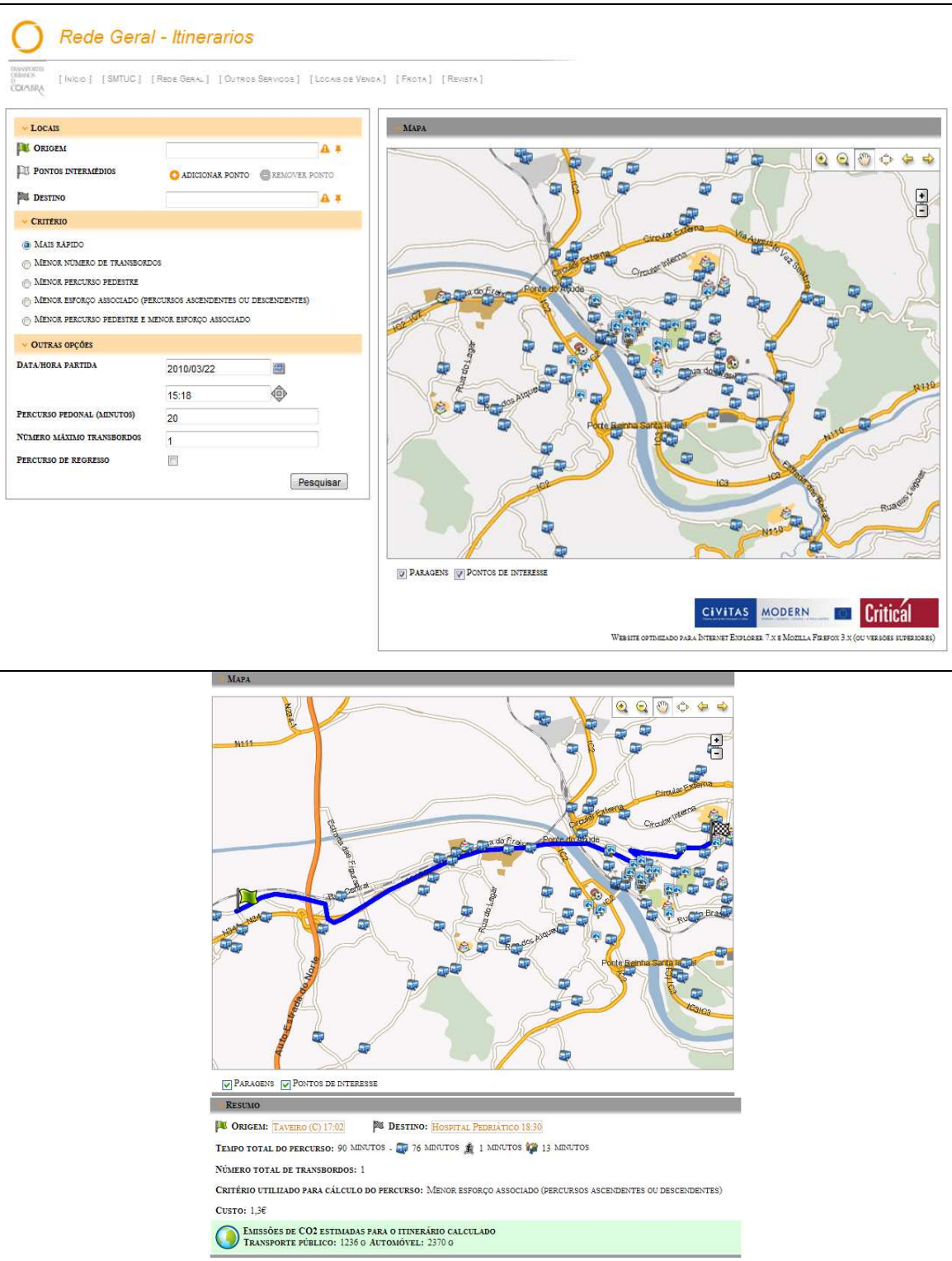


Fig. 6 – The user interface of the RUMOS Trip planner. The screen for the input data that allow the user to choose the travel criteria (fig .above) and the travel route suggested by the application (Fig. below).

- *Software testing was performed, which included software pre-acceptance testing. During this phase numerous tests were performed by SMTUC and CSW to evaluate the performance and quality of the 'journey summary' and the 'route details';*
- *New software requirements and performance improvements were identified and coded. New software versions were released.*
- *Update of the User & Administration Manual, with reference to the new implemented requirements and the definition of the new RUMOS "Back-office" procedures;*
- *Release of the "draft" version of the RUMOS Back-Office software tool according to the specified requirements;*
- *The RUMOS/Back-Office training activities were carried out. Additional new features were identified and minor software issues were detected and fixed;*
- *The Back-Office SW acceptance testing was successfully achieved. the "final" version of the RUMOS Back-Office software tool was released;*
- *The final version of the RUMOS user and administration manual "Manual do Utilizador e Administrador" was delivered.*

Stage 6: Operational functioning of the Infomobility Centre *(September 2009 – October 2012) – The Infomobility Centre was inaugurated on 15th September 2009, functioning with at least 1 worker in permanence during 12 hours at workable days. Currently the Centre runs with 2 staff members simultaneously from 7:30 into 19:30 (Monday into Friday) and one from 8:00 to 13:00 (Saturday). The activities carried out in the centre have been mainly the following:*

- *Information and sales of tickets and services of all operators of PT in the region and provision of other products and services concerning the mobility area.*
- *Customization and loading of "contact-less" cards for passes.*
- *Survey, among users of the centre, of needs in terms of mobility, for future establishment of mobility and travel plans, including for enterprises and other entities.*
- *Promotion of several campaigns and hosting of events, namely the public presentation of "SMTUC MOBILE" and "RUMOS" services and press conferences. Actions of promotion of the centre and of the "RUMOS" trip planner have been carried out, resulting in several news in the press. Highlight of the activities of the European Car Free Day that began in the Centre with a press conference and the launch ceremony of the new e-ticketing system (CIVITAS MODERN measure 02.05). Afterwards, the Mayor of the Coimbra Municipality participated in the demonstration of a bike sharing service, riding a bike from the centre to the municipal market (Fig. 7).*
- *Monitoring of the centre and RUMOS functioning.*

Fig.7 - Activities in the Infomobility Centre during the European Car Free Day – Mayor of Coimbra launched the e-ticketing system (left) and tried a bike sharing system in a ride that began in the centre (right).

Stage 7: Training about RUMOS trip planner *(October 2009 – May 2010) – RUMOS has been installed, and training sessions provided, as well as "on-the-job" training activities to the operators for the RUMOS Back-Office (reference also to the Geographical Information System). New training activities 2010 of an improved version of the Back-Office were carried out in April and May.*

Stage 8: RUMOS promotion near the users *(November 2009 – May 2010) – Information and dissemination of the RUMOS, namely through the following:*

- *RUMOS service has been promoted at various workshops and conferences, namely at the Lisbon IMTT-EPOMM Conference, and Workshops in Aveiro and Beja. At the local level, SMTUC promoted RUMOS at the meeting with the local Chamber of Industry and Commerce which also involved various stakeholders, such as PT operators, municipal district political representatives, political parties, local opinion-makers, and news media.*
- *RUMOS is being publicized to the general population through its trials at the Infomobility Centre, as well as other SMTUC points of sale.*
- *The Coimbra Site Coordinator presented the RUMOS trip planner in the 2011 National Convention of a World Leader in Geographic Information Systems (ESRI), held on 3 March 2011 and attended by more than 1,000 participants.*

A document concerning the RUMOS development and implementation report was delivered in March 2010.

The installation of the RUMOS application in new Multimedia Outdoor Kiosks is being studied and evaluated (Fig. 8). These interactive kiosks will offer other complementary services, such as mobility information, weather forecasting, touristic and commercial information, pharmacies, advertisement, etc.

Fig. 8 – Multimedia Outdoor Kiosk

Stage 8: Operational functioning and management of the RUMOS system *(October 2009 – October 2012) – In this phase the management of the system consists mainly of the following:*

- *First operations with the "Back-Office" of RUMOS system, namely the importation, consolidation and consistency validation of the data.*
- *Monitoring the system in the Infomobility Centre and on-line.*
- *Data updated using the Back-Office whenever occurred changes in the PT network.*

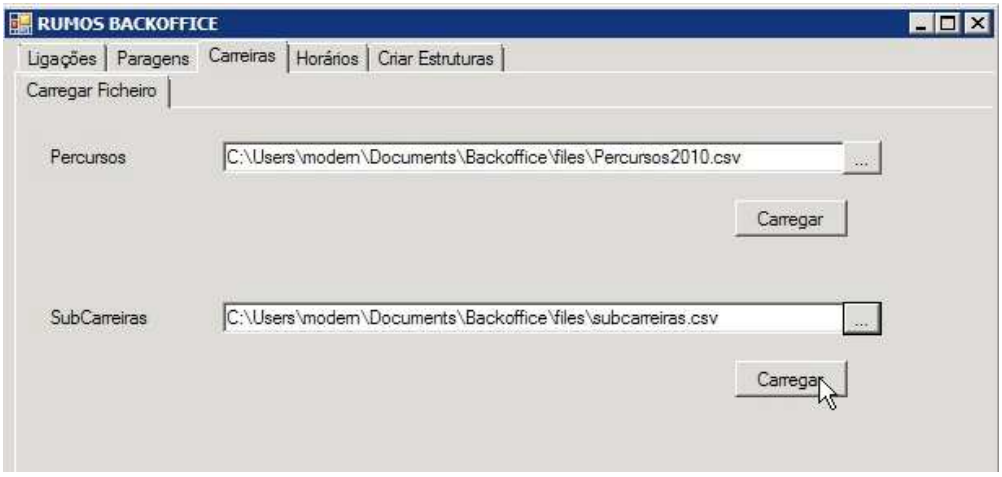


Fig. 9 – RUMOS Back-Office Interface

B5 Inter-relationships with other measures

The measure is related to other measures as follows:

- **Measure no. 02.05** – The new e-ticketing System in Coimbra is related with the Infomobility Centre because this centre is also a point of tickets and cards sale / load;

- **Measure no. 04.05** – The Centre also promotes the mobility campaigns and travel plans concerning the entities involved in the mobility management actions;

- **Measure no. 08.03** – The data provided by the GPS/GPSR – Operation Support System have capabilities linked to the "RUMOS trip planner", also integrated in measure no. 04.02. In any case these 2 systems are not integrated, but only the data base of RUMOS is updated with the data of the GPS/GPSR – Operation Support System.

Concerning the impacts of these systems we can consider that the fact that each one started in different dates avoided the bundle of these measures. The measure 08.03 started in 2008 before CIVITAS MODERN project beginning, so the ex-post data was assessed before the start of the measure 04.02 in September 2009 with the opening of the Infomobility Centre. The same for the measure 02.05, that only began in January 2012, after the evaluation of the other 2 measures.

C Evaluation – methodology and results

C1 Measurement methodology

C1.1 Impacts and Indicators

Table C1.1.1: Indicators.

No.	Impact	Indicator	Data used	Comments
1	Operating Costs	Operating costs	Operating costs with the Infomobility centre and the RUMOS trip planner;	Operating revenues are provided by SMTUC
2	Costs	Capital Costs	Total capital costs expended in setting up the measure (Infomobility centre and the RUMOS trip planner)	Costs are provided by SMTUC
3	Quality of Service	Quality of PT Service	Index of the "perception" of service quality at sales points and on the SMTUC webpage	The RUMOS Trip planner is based in the main web page of SMTUC, the urban public transport operator. The data source was the customers satisfation survey
4	Quality of Service	RUMOS Trip planner usage	Number of RUMOS accesses per month	Automaticaly recorded in the RUMOS back office
5	Quality of Service	Attendance at the Infomobility Centre	Number of attendances per year at the Centre	Recorded in the Queu machine of the Centre
6	Awareness	Awareness level	Total number of users with knowledge of the measure; Total number of respondents	Awareness level is by the customers satisfaction survey
7	Awareness	Mobility Marketing	Number of great promotional campaigns	Only great events or campaigns that were hosted in the Centre
8	Acceptance	Acceptance level – users	Total number of users who favourably receive the measure; Total number of respondents	Acceptance level is by the customers satisfaction survey
9	Acceptance	Acceptance level – operators	Total number of operators who favourably receive the measure; Total number of responding operators	Acceptance level is by the operators survey

Due to the characteristics of that mesure, the selection of the indicators is mainly connected with the impact of the Centre in terms of the improvement of the quality of the service that is expected to be provided to the actual users of the public transport and the expected attractiviness to the future users.

The information related to capital and operational costs is compledeted with indicators about quality of the service and the awareness and acceptance levels of the measure.

Detailed information regarding the possible and desirable change in the modal shift, due to more accessible and diverse information of the transport system of the city and the region , came out to be difficult to be assessed.

Due to the fact that the measure was started-up very early and concluded before.the evaluation plan was consolidated, ex-ante modal shift data was not collected. Accordingly this indicator, and related indicators (e.g., operational revenues and emissions) were not evaluated.

Detail of the Survey

Indicators n. 3, 6 and 8 are based on the main results of the yearly survey carried out by SMTUC in the scope of the Quality Management procedures in accordance with the ISO 9001 standard

We present the main characteristics of this survey:

The questionnaire starts with the characterisation of the interviewee – Sex, Age (<18, 19-25, 26-45, 56-65, >65), type of client (frequent, occasional, exceptional/rare use), motive of the trip (home-work/school, shopping/leisure, in service), type of ticket (pass, single ticket bought on the selling point, single ticket bought on the vehicle, other).

The main part of the questionnaire is composed of 38 specific questions related to various items related to 5 areas of the service (1-Available information, 2-Quality of service, 3-Contribution to society, 4-Image of the company, 5-Communication with the administrative services) and a specific global customer satisfaction question that resume the quality of the service. In each question the people interviewed express a judgement choosing between very satisfied – satisfied – unsatisfied – very unsatisfied and about the importance of each of the 38 items choosing between very important – important – low importance.

The survey is repeated once a year and is carried out to customers in face to face interviews on board of the SMTUC buses.

The sample is selected on the basis of the lines used by the passengers, i.e., the number of interviewees chosen in each line is defined according to the demand of the line relative to the overall SMTUC demand.

The dimension of the sample is defined according to the specifications of the quality management auditors which supervise the whole process in accordance with the ISO9001 standard.

The quality management auditors considered 500 interviews as (a minimum) suitable to assess the quality evaluation by PT passengers in Coimbra. However, SMTUC volunteered to go above this number. Thus, the following number of interviews and valid answers were achieved:

In 2009 a sample of 1000 interviews was defined.

In 2010 and 2011 a sample of 750 interviews was defined.

All the interviews were validated since incomplete or incorrect surveys were refused and repeated with other interviewee.

Detailed description of the indicator methodologies:

Indicator 1 (*Operating Cost*) – The operating costs considered are those related with the maintenance, personnel cost and renting.of the Infomobility Centre and the costs with the RUMOS trip planner maintenance service (€).

This data has been recorded through the normal of SMTUC accountig system procedure.

- **Indicator 2** (*Capital Costs*) – Total capital costs expended in setting up the measure (€).

  Expenditures with the building renovation of the Infomobility Centre and respective purchase of furniture and equipment, as well as the capital cost concerning the development of RUMOS system (€)

  This data has been recorded through the normal procedure of SMTUC accountig system procedure.

- **Indicator 3** (*Quality of PT Service*) – User's perspective of the overall quality of the service provided according to the index of the "perception" of service quality.

  $A = \sum [(1 \times B + 2 \times C + 1 \times D + 1 \times E) / (B + C + D + E)]_i / N$

  Where: A = Quality of PT Service

  B = Number of respondents Very Unsatisfied with the corresponding service item

  C = Number of respondents Unsatisfied with the corresponding service item

  D = Number of respondents Satisfied with the corresponding service item

  E = Number of respondents Very Satisfied with the corresponding service item

  i = Items concerned with the measure, rating from 1 to N

  N = Total number of items concerned with the measure

  The Quality of the PT Service is measured during customer satisfaction surveys (for more details, see annex dedicated to the customer satisfaction survey) by the following specific questions relating the satisfaction level of the respondent about the measure – Question 6 (relative to item 1): How do you rate your satisfaction level about the information at SMTUC sales points? Question 9 (relative to item 2): How do you rate your satisfaction level about the Information available on the Internet?

- **Indicator 4** (*RUMOS Trip planner usage*) – Number of accesses to the RUMOS trip planner per month.

  The number of users' accesses is automatically recorded in the back office of the RUMOS trip planner

- **Indicator 5** (*Attendance at the Infomobility Centre*) – Number of costumers attendance at the Infomobility Centre.

  The number of costumers attendance is automatically recorded in the Queue machine / Ticket dispense machine of the Infomobility Centre

- **Indicator 6** (*Awareness level*) – Percentage of the users with knowledge of the measure on account of provided information (%).

  $A = B / C \times 100$

  where: A = Percentage of users with knowledge of the measure (%)

  B = Total number of respondents with knowledge of the measure

  C = Total number of respondents

  The Awareness level of the measure is measured during customer satisfaction surveys (for more details, see annex dedicated to the customer satisfaction survey) by introducing the following specific question relative to the knowledge of the respondent about the measure – Are you aware about the existence of the Infomobility Centre and about the services provided there?

- **Indicator 7** (*Mobility Marketing*) – Number of promotional campaings hosted by the Infomobility Centre

  Number of large-scale events / large-scale promotional campaigns hosted by the Infomobility Centre

- **Indicator 8** (*Acceptance level – users*) – Percentage of the users who favourably receive the measure (%).

  $A = \sum [B / C \times 100]_i / N$

  where: A = Percentage of users who favourably receive the measure (%)

  B = Total number of respondents who favourably receive the measure (by saying that they are satisfied or very satisfied about the measure)

  C = Total number of respondents

  i = Items concerned with the measure, rating from 1 to N

  N = Total number of items concerned with the measure

  The Acceptance level of the measure is calculated through the customer satisfaction surveys (for more details, see annex dedicated to the customer satisfaction survey) by the following specific questions relative to the attitude of the respondent about the measure – Question 6 (relative to item 1): How do you rate your satisfaction level about the information at SMTUC ticket selling shops? Question 9 (relative to item 2): How do you rate your satisfaction level about the Information available on the Internet?

- **Indicator 9** (*Acceptance level – PT operators*) – Percentage of the PT operators who favourably receive the measure (%).

  $A = B / C$

where: A = Percentage of PT operators who favourably receive the measure (%)

B = Total number of respondents who favourably receive the measure

C = Total number of respondents

The Awareness level of the measure is measured during the so called Operator's Survey, set up to measure the Awareness and Acceptance Level of PT Operators about the measure.

This survey is composed of specific questions that resume the operator's attitude towards the actions undertaken on the scope of the measure. The survey is repeated once a year and is carried out through direct contacts to the full number of operator providing public transportation in the Coimbra region.

C1.2 Establishing a Baseline

2008 is considered as the baseline, before the start of the "Operational functioning of the Infomobility Centre" in September 2009.

Nevertheless for the indicator 2 (Capital Cost) 2007 was considered the baseline year because in 2008 there was already costs with the software development of the RUMOS trip planner that didn't have impact on the others indicators.

The measure results are obtained from SMTUC records for indicators 1 ,2, 4, 5 and 7 , from the customer satisfaction survey periodically carried out by SMTUC for indicator 3, 6 ,and 8, , and from the operator's survey carried out by SMTUC to assess the acceptance level of the several PT operators of the Coimbra Metropolitan Area about the indicator 9.

Indicators 1 and 2 (Operating Costs and Capital Costs):

The transport public operator SMTUC provided information on costs of operating the Infomobility Centre and the RUMOS Trip planner as well as on capital costs for setting up the measure

Since the RUMOS Trip planner development began in October 2008 and the Infomobility Centre began functioning in September 2009 the baseline for the Capital Costs has been considered the year 2007 while for the Operating Costs the year 2008 has been considered, booth with the value of zero, due the fact that before these dates no mobility centre or trip planner with similar characteristics existed. The next table shows the baseline for indicators 1 and 2:

Table C1.2.1: Baseline for indicators 1 and 2.

Indicators and respective parameters	Ex-Ante values
Total Operational Costs (2008)	0,00 €
Total capital cost (2007)	0,00 €

Indicator 3 (Quality of Service)

To get a qualitative assessment of service, a survey to PT users was conducted in December 2008 and January 2009 on board of SMTUC bus services in Coimbra. The survey model is detailed in C1.1 and in the Annex 7. The results obtained for this indicator are detailed in Annex 1.

The next table shows the baseline for the Quality of PT Service:

Table C1.2.2: Baseline for indicator 3

Year	Quality of PT Service (from 1 to 4) – Ex Ante
2008*	3,12

* Data collection has been performed from 2008-12-04 to 2009-01-09

Indicator 4 (RUMOS Trip planner usage) and Indicator 5 (Attendance at the Infomobility Centre)

Both these indicators were considered having the baseline value equal to zero, because before 2008 there did not exist any mobility centre or trip planner with similar characteristics. Before the implementation of the measure Coimbra only had sales points that didn't have the PT operators integrated in the same point and didn't have the capabilities to host events.

The next table shows the baseline for indicators 4 and 5:

Table C1.2.3: Baseline for indicators 4 and 5

Indicators and respective parameters	Ex-Ante values
RUMOS Trip planner usage (2008) – Number of accesses	0
Number of attendances at the Infomobility Centre (2008)	0

Indicator 6 (Awareness – Users)

To get a qualitative assessment of knowledge towards change a specific question was added to the customer satisfaction survey to PT users. However, this question was not applied during the survey conducted in December 2008 and January 2009 considering that before the launch of the "Mobility Centre" it made no sense to ask people if they knew this service. Accordingly, it has been established that before something exists no one can have knowledge of that fact. In relation to the attitude towards changes, results from specific questions of the customer satisfaction survey conducted in December 2008 and January 2009 were considered.

The indicator has been assessed by introducing the following specific question relative to the knowledge of the respondent about the measure – Are you aware about the existence of the Infomobility Centre and about the services provided there?

The survey model is detailed in Annex 7. The results obtained for this indicator are detailed in Annex 2 and 3.

Therefore, the next table shows the results of baseline for the awareness level of the PT users about the Infomobility Centre:

Table C1.2.4: Baseline for indicator 6

Year	Awareness Level – Users – Ex Ante
2008*	0%

* Data collection has been performed from 2008-12-04 a 2009-01-09

Indicator 7 (Mobility Marketing)

Before the implementation of this measure no mobility centre existed and in the existing sales points there were no conditions to host promotional campaigns. For this reason the baseline for this indicator has been considered zero.

The next table shows the results of the baseline for the indicator 7:

Table C1.2.5: Baseline for indicator 7

Indicators and respective parameters	Ex-Ante values
Mobility Marketing (2008) – Number of promotional campaigns	0

Indicator 8 (Acceptance – Users)

To get a qualitative assessment of knowledge towards change a specific question was added to the customer satisfaction survey to PT users. In relation to the attitude towards changes, results from specific questions of the customer satisfaction survey conducted in December 2008 and January 2009 were considered.

The indicator has been assessed by the following specific questions relative to the attitude of the respondent about the measure – Question 6 (relative to item 1): How do you rate your satisfaction level about the information at SMTUC ticket sales points? Question 9 (relative to item 2): How do you rate your satisfaction level about the Information available on the Internet?

The survey model is detailed in Annex 7. The results obtained for this indicator are detailed in Annex 2 and 3.

Therefore, the next table shows the results of baseline for the indicator 8:

Table C1.2.6: Baseline for indicator 8

Year	Acceptance Level – Users – Ex Ante
2008*	89,5%

* Data collection has been performed from 2008-12-04 a 2009-01-09

Indicator 9 (Acceptance – PT Operators)

To get a qualitative assessment of attitude of PT operators towards the measure, a survey was conducted to the 4 PT operators of the Coimbra Metropolitan Area (during the period from 1st July to 13th July 2011). Although the survey was conducted after the implementation of the measure, the interviewees were asked to report their answers to their attitude before the implementation of the measure (i.e., to the baseline period- 2008).

Additional details about Acceptance Level- PT Operators Data in Annex 6

The next table shows the results of baseline for this indicator:

Table C1.2.7: Baseline for indicator 9

Indicators and respective parameters	Ex-Ante values
Acceptance level (2008)	100 %

C1.3 Building the Business-as-Usual scenario

The CIVITAS MODERN was crucial to implement the Mobility Centre and the other actions developed within the scope of the measure and without it the implementation of the Mobility Centre and of the other actions developed within the measure would not have take place within the period of the project.

Without the implementation of the measure (business-as-usual scenario) no changes were likely to occur in any indicators of the measure..

It is considered that there are no effects of other factors that have any influence on these indicators

Therefore, the B-a-U scenario for these indicators equals to the respective baseline situation (Ex-Ante value).

Indicator 1 (Operating Costs) and 2 (Capital Costs)

Without this CIVITAS MODERN measure the RUMOS trip planner and the Infomobility Centre would not have been implemented in the time span of the project and accordingly the capital costs and the operating cost would be zero.

Therefore, tables C1.3.1 and C1.3.2 show the results of BAU scenario for these cases.

Table C1.3.1: Results of the BAU scenario for indicator 1

Indicators and respective parameters	BAU Values
Average operating cost (2009)	0,00 €
Average operating cost (2010)	0,00 €
Average operating cost (2011)	0,00 €

Table C1.3.2: Results of the BAU scenario for indicator 2

Indicators and respective parameters	BAU values
Total capital cost (2009)	0,00 €
Total capital cost (2010)	0,00 €
Total capital cost (2011)	0,00 €

Indicator 3 (Quality of PT Service)

If this measure wasn't implemented, the Quality of PT Service would be as before. It is considered that there are no effects of other factors that have any influence in this indicator. In this case the Business-as-usual is equal to the baseline situation as shown in the next table.

Table C1.3.3: Results of the BAU scenario for indicator 3

Indicators and respective parameters	BAU values
Quality of service (2008) *	3,12 (from 1 to 4)

* Data collection performed from 2008-12-04 a 2009-01-09

Indicator 4 (RUMOS Trip planner usage) and Indicator 5 (Attendance at the Infomobility Centre)

If this measure wasn't implemented, the RUMOS Trip planner usage and the Attendance at the Infomobility Centre did not exist. It is considered that there are no effects of other factors that have any influence in this indicator. In this case the Business-as-usual is zero like the baseline situation as shown in the tables C1.3.4 and C1.3.5.

Table C1.3.4: Results of the BAU scenario for indicator 4

Indicators and respective parameters	BAU values
RUMOS Trip planner usage (2009) – Number of accesses	0
RUMOS Trip planner usage (2010) – Number of accesses	0
RUMOS Trip planner usage (2011) – Number of accesses	0

Table C1.3.5: Results of the BAU scenario for indicator 5

Indicators and respective parameters	BAU values
Number of attendances at the Infomobility Centre (2009)	0
Number of attendances at the Infomobility Centre (2010)	0
Number of attendances at the Infomobility Centre (2011)	0

Indicator 6 (Awareness level – users)

If this measure has not been implemented the users would not be aware of the measure. In this case the Business-as-usual would have continued equal to the baseline situation (0%).

Therefore, the next table shows the results of BAU scenario for this case.

Table C1.3.6: Results of the BAU scenario for indicator 6

Indicators and respective parameters	BAU values
Awareness level – users (2009)	0 %
Awareness level – users (2010)	0 %
Awareness level – users (2011)	0 %

Indicator 7 (Mobility Marketing)

If this measure has not been implemented no mobility centre existed and in the existing sales points there were no conditions to host promotional campaigns. For this reason the Business-as-usual scenario for this indicator continue to be considered zero and equal to the baseline.

Therefore, the next table shows the results of BAU scenario for this case.

Table C1.3.7: Results of the BAU scenario for indicator 7

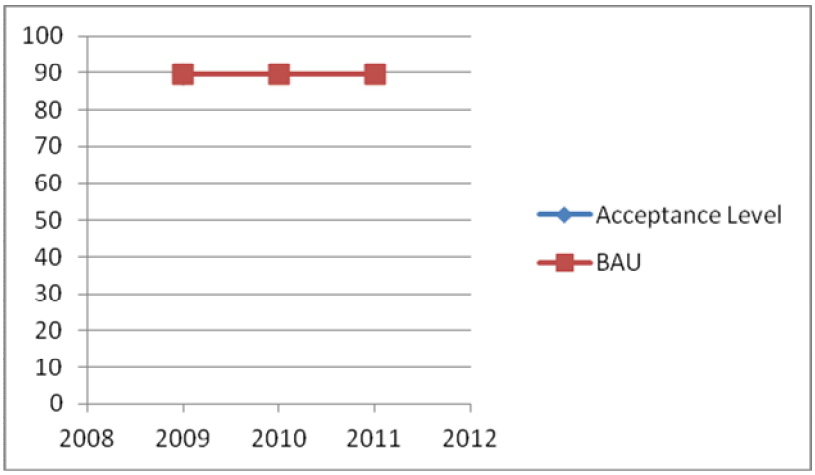
Indicators and respective parameters	BAU values
Mobility Marketing (2009) – Number of promotional campaigns	0
Mobility Marketing (2010) – Number of promotional campaigns	0
Mobility Marketing (2011) – Number of promotional campaigns	0

Indicator 8 (Acceptance level – users)

If this measure has not been implemented, the Acceptance level – users related to the Infomobility Centre and RUMOS trip planner would have been as before. It is considered that there are no effects of other factors that have any influence in this indicator.

In this case the Business-as-usual is equal to the baseline situation.

The next graph shows the evolution of the Acceptance Level (%) obtained for the B-a-U scenario.



Graph C1.3.1 – Acceptance level of users - trend without CIVITAS (BAU)

Therefore, the next table shows the results of BAU scenario for this case.

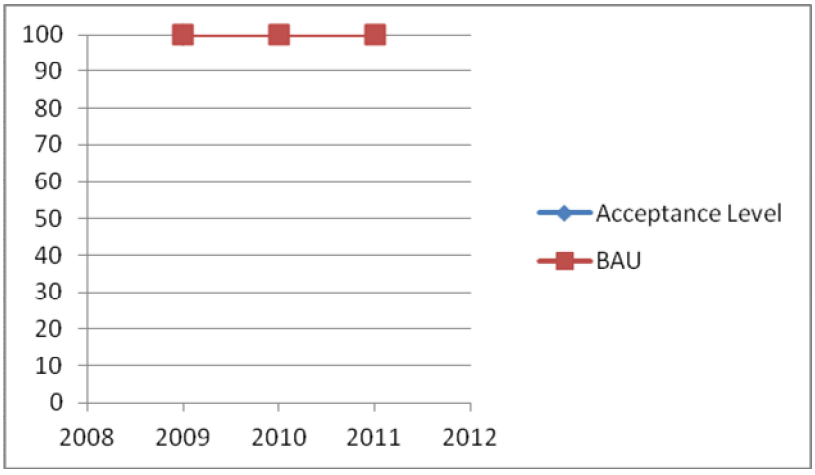
Table C1.3.8: Results of the BAU scenario for indicator 8

Indicators and respective parameters	BAU values
Acceptance level – users (2009)	89,5 %
Acceptance level – users (2010)	89,5 %
Acceptance level – users (2011)	89,5 %

Indicator 9 (Acceptance level – PT operators)

If this measure wasn't implemented, the Acceptance level – PT operators related to the Infomobility Centre would be as before (i.e. 100%).

The next graph shows the evolution of the Acceptance level (%) obtained for the B-a-U scenario.



Graph C1.3.2 – Acceptance level of PT operators - trend without CIVITAS (BAU)

Therefore, the nest table shows the results of BAU scenario for this case.

Table C1.3.9: Results of the BAU scenario for indicator 9

Indicators and respective parameters	BAU values
Acceptance level – operators (2009)	100 %
Acceptance level – operators (2010)	100 %
Acceptance level – operators (2011)	100 %

C2 Measure results

The results are presented under specific sub headings corresponding to the areas used for indicators – economy, energy, environment, society and transport.

C2.1 Economy

In the same way as for the baseline, the results from the indicators after implementing the measure in September 2009 have been calculated. The total operating costs concerning the measure ("Operational functioning of the Infomobility Centre", "RUMOS trip planner" and respective "divulgation campaigns"), including personnel, material and energy, both in terms of maintenance and operation were calculated. The following table shows the results of indicators 1:

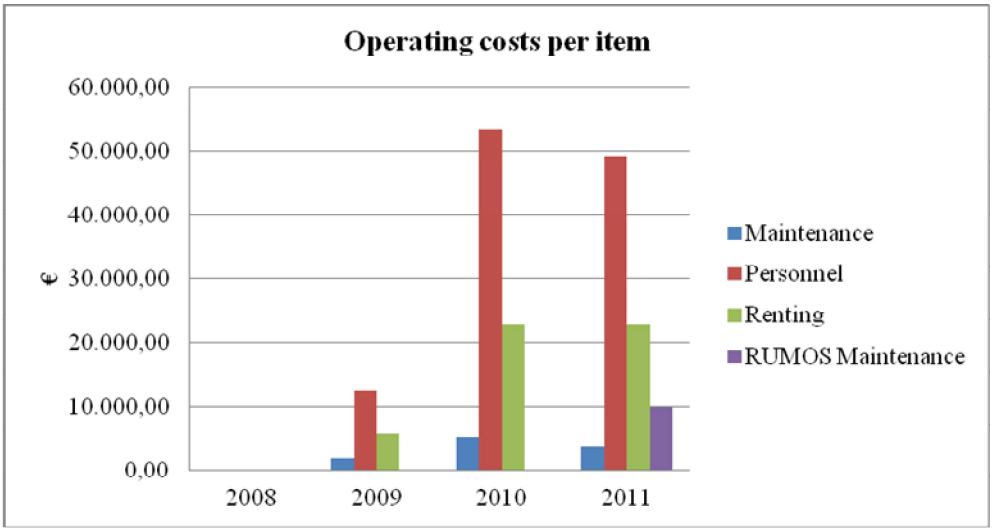
Table C2.1.1: Ex-Post results of the indicator 1

Operating Costs (€)

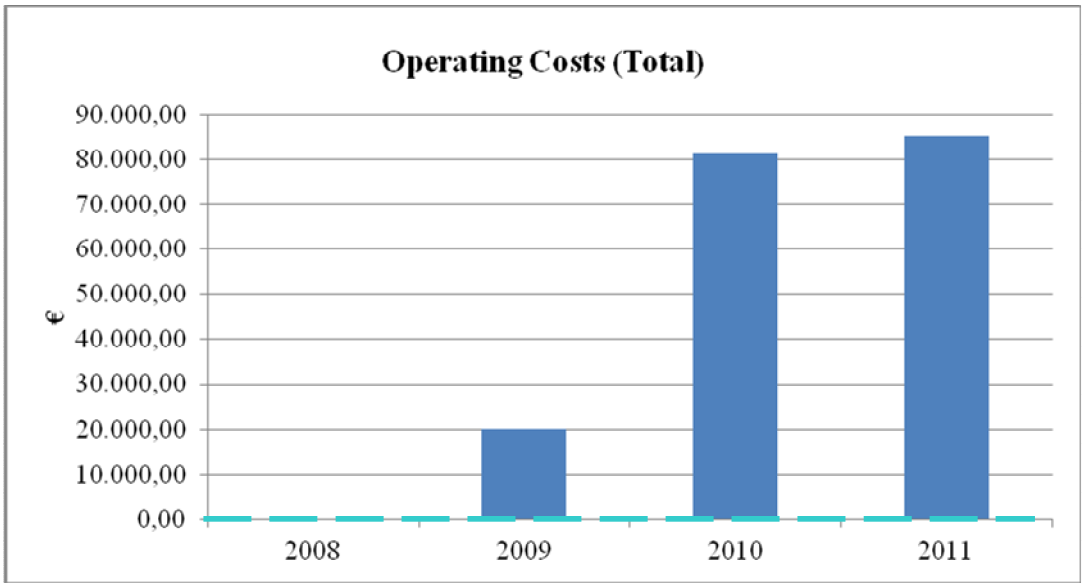
	2009	2010	2011	**TOTAL**	
Infomobility Centre					
Maintenance	1.791,70	5.180,51	3.604,57	10.576,78	5,7%
Personnel	12.416,04	53.354,76	49.140,88	114.911,68	61,6%
Renting (*)	5.700,00	22.800,00	22.800,00	51.300,00	27,5%
Total	19.907,74	81.335,27	75.545,45	176.788,46	
RUMOS Trip planner					
Maintenance			9.900,00	9.900,00	5,3%
TOTAL	**19.907,74**	**81.335,27**	**85.445,45**	**186.688,46**	100,0%

(*) Since Oct-09 1.900€/month

Nearly 95% of the total operational costs are attributed to the Infomobility Centre. The personnel costs are responsible for a high share of these expenses (61%), while also the rent has a quite high impact on costs (27,5%). On the other hand, the RUMOS trip planner has low operating costs since they are limited to the maintenance. The graph C2.1.1 shows the operating costs per item and graph C2.1.2 shows the total operating costs.



Graph C2.1.1 – Results of the operating costs per item with the measure implementation



Graph C2.1.2 – Results of total operating costs with the measure implementation (BAU is zero)

Also the capital total costs were accounted. As expected, the results confirm an increase in the operating costs and in the total capital costs as result of the introduction, promotion, operation and maintenance of the new features introduced in the scope of the measure in the PT operation in Coimbra, i.e, the "Infomobility Centre" and the "RUMOS trip planner".

Concerning the capital costs the table …contains the data for the Infomobility Centre and RUMOS trip palnner.

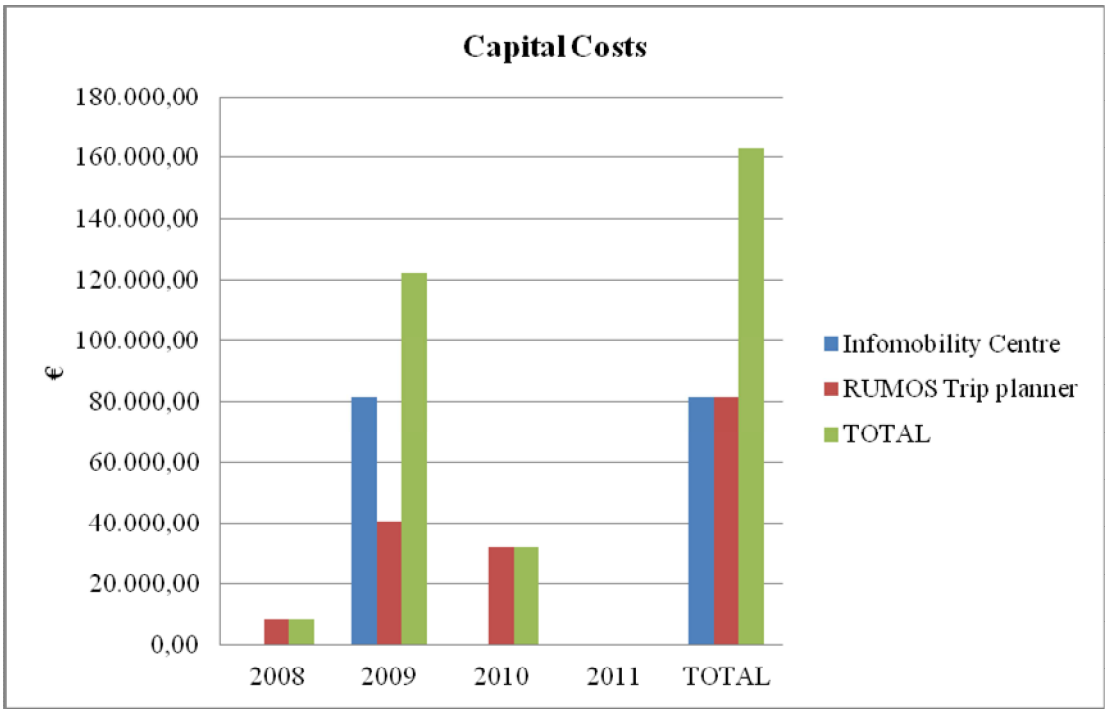
Table C2.1.2: Ex-Post results of the indicator 2

Capital Costs €

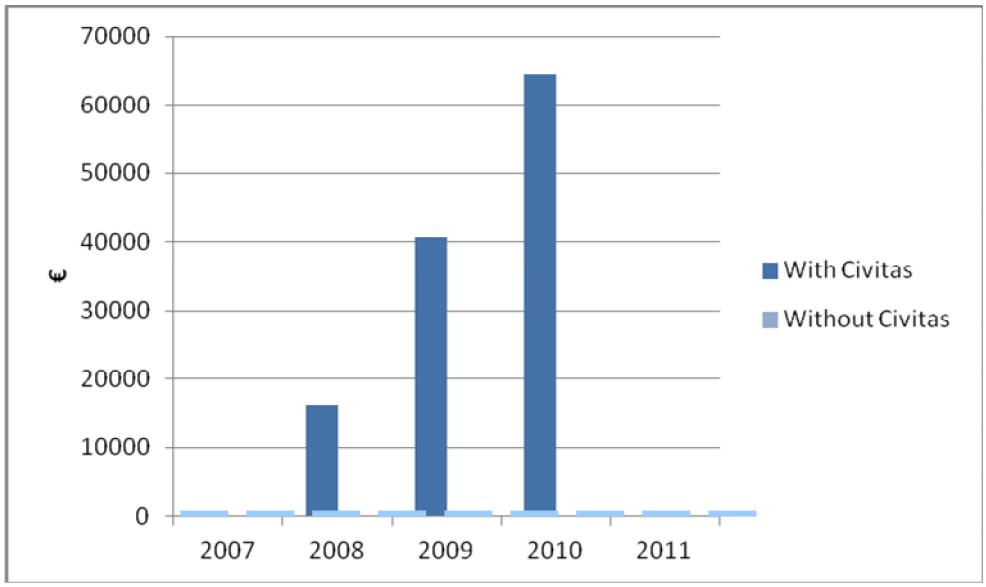
	2008	2009	2010	2011	**TOTAL**
Infomobility Centre	0,00	81.379,52	0,00	0,00	81.379,52
RUMOS Trip planner	8.483,68	40.721,68	32.237,99	0,00	81.443,35
TOTAL	**8.483,68**	**122.101,20**	**32.237,99**	**0,00**	**162.822,87**

A careful analysis of the overall capital costs reveals that the two interventions have similar costs. However, those costs are dissimilar in their temporal dimension, i.e., the Infomobility Centre has the total share of costs in 2009 while the expenditures for RUMOS are spread throughout a three year period.

The graph C2.1.3 shows the capital costs per item and graph C2.1.4 shows the total capital costs.



Graph C2.1.3 – Results of the capital costs per item with the measure implementation



Graph C2.1.4 - Capital Costs - trend without CIVITAS (BAU) and results with CIVITAS

The graphs above show that capital and the operating cost experienced an increase as result of the implementation of the measure.

The next table shoes the balance between the economic indicators.

Table C2.1.3: Summary – Balance between economy indicators (after/before and after/BAU)

Indicator	Before (date)	B-a-U (date)	After (date)	Difference: After –Before	Difference: After – B-a-U
1. Operating Costs	0,00 € (2007)	0,00 € (2009) 0,00 € (2010) 0,00 € (2011)	19.907,74 € (2009) 81.335,27 € (2010) 85.445,45 € (2011)	19.907,74 € (2009) 81.335,27 € (2010) 85.445,45 € (2011)	19.907,74 € (2009) 81.335,27 € (2010) 85.445,45 € (2011)
2. Capital Costs	0,00 € (2007)	0,00 € (2008) 0,00 € (2009) 0,00 € (2010) 0,00 € (2011)	8.483,68 € (2008) 122.101,20 € (2009) 32.237,99 € (2010) 0,00 € (2011)	8.483,68 € (2008) 122.101,20 € (2009) 32.237,99 € (2010) 0,00 € (2011)	8.483,68 € (2008) 122.101,20 € (2009) 32.237,99 € (2010) 0,00 € (2011)

C2.4 Transport

Indicator 3 (Quality of PT Service)

In a similar fashion with the baseline, the results of the indicators were obtained after implementing the measure in September 2009. The next table shows the results of indicator 3:

Table C2.4.1: Ex-Post results of the indicator 3

Year	Quality of PT Service (from 1 to 4) – Ex Post
2010	3,03
2011	3,17

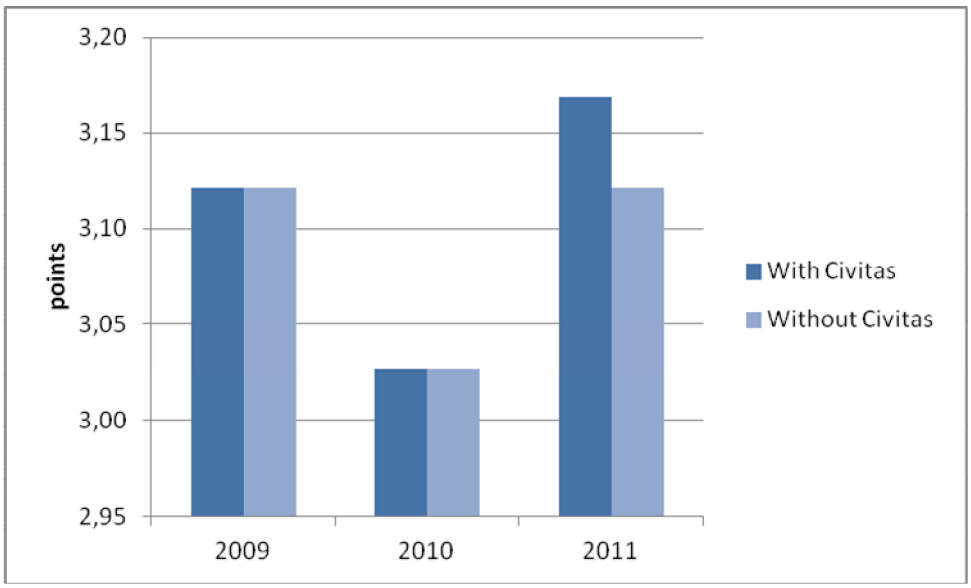
Regarding the evolution in passenger perception about the quality of the service, by means of the results taken from the quality survey made to assess the satisfaction of passengers about the SMTUC PT service, these results reflect specifically the changes introduced by the measure.

The next table shows the balance between the indicator 3.

Table C2.4.2: Summary – Balance between Quality of PT service indicator (after/before and after/BAU)

Indicator	Before (date)	B-a-U (date)	After (date)	Difference: After –Before	Difference: After – B-a-U
3.Quality of PT Service	3,12 points (2009)	3,12 points (2010) 3,12 (2011)	3,03 points (2010) 3,17 (2011)	-0,09 points (2010) 0,05 (2011)	-0,09 points (2010) 0,05 (2011)

The next graph shows the evolution of the Quality of PT Service (from 1 to 4) With CIVITAS and the evolution of this indicator according to the B-a-U scenario (Without CIVITAS).

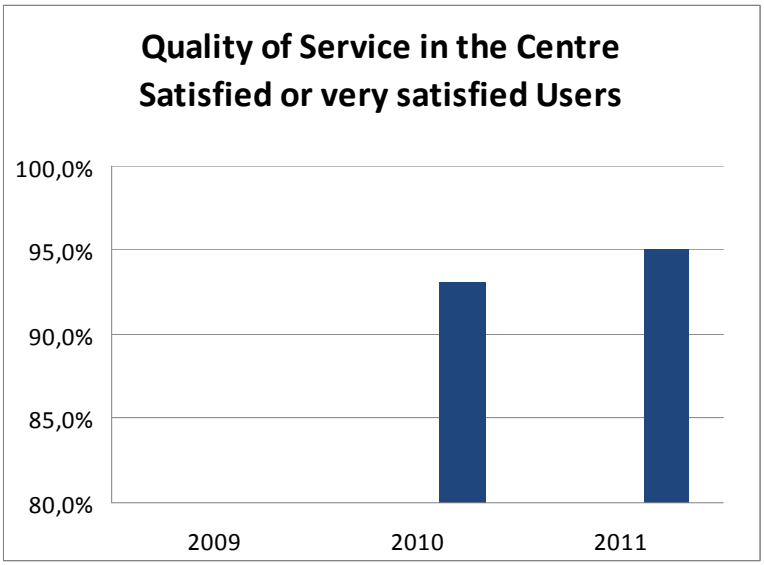


Graph C2.4.1 – Quality of PT Service - trend without CIVITAS (BAU) and results with CIVITAS

The results demonstrated that the Quality of PT Service continued higher (superior to 3 in a maximum of 4) and the evolution shows that the results after the implementation of the measure are lower in 2010 in comparison to those before and higher in 2011. According to information from SMTUC, 2009 PT strikes may have influenced negatively respondents' answers and therefore the 2010 results (for additional information see Annex 3 Quality of PT Service Data). Also, the fact that the 2010 survey has been carried out in March / beginning April - less of 6 months after the Centre oppened - could have contributed to a low level of perception about the Infomobility Centre's advantages.

Also an evaluation of the Quality of the Service provided in the Infomobility Centre has been carried out through the same yearly survey that was fulfilled in the scope of the Quality Management procedures to the SMTUC passengers (sample between 750 and 1.000 passengers). The respondents should indicate from 1 to 4 their satisfaction with the services provided in the Infomobility Centre and 93,1% were satisfied or very satisfied in 2010 and this number grew for 95,1% in 2011.

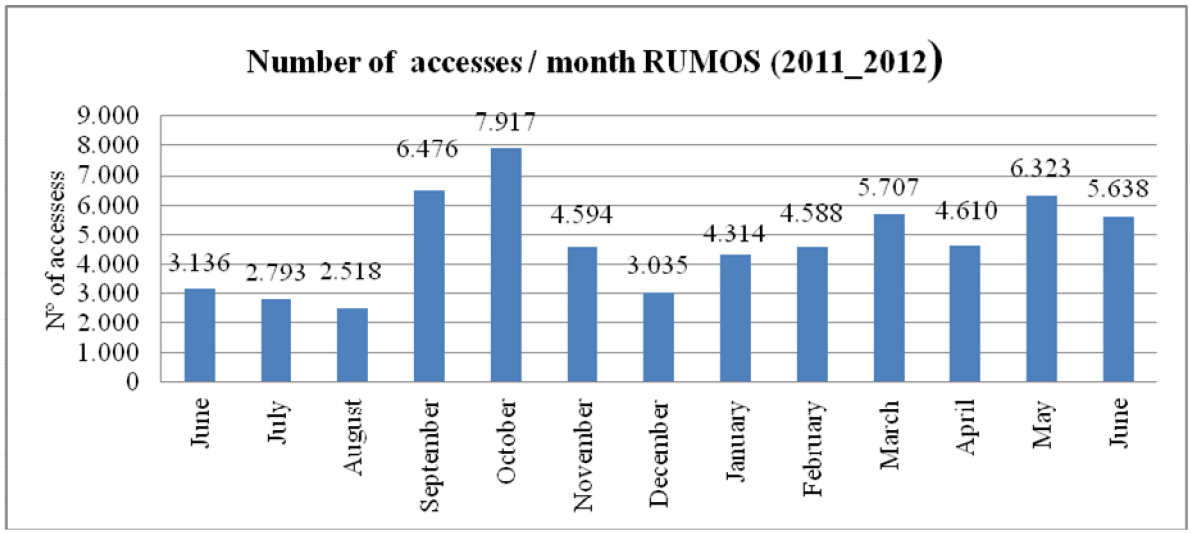
The next graph shows the evolution of the perception of the PT users about the Quality of Service in the Infomobility Centre.



Graph C2.4.2 – Quality of the service in the Infomobility Centre (saisfied or very satisfied users)

Indicator 4 (RUMOS Trip planner usage)

Regarding the other indicator for the quality of the service, which comprehends the number of monthly accesses to the RUMOS trip planner site, data is available for the period of June – December 2011 and January – June 2012. These results are illustrated in the following graphic.



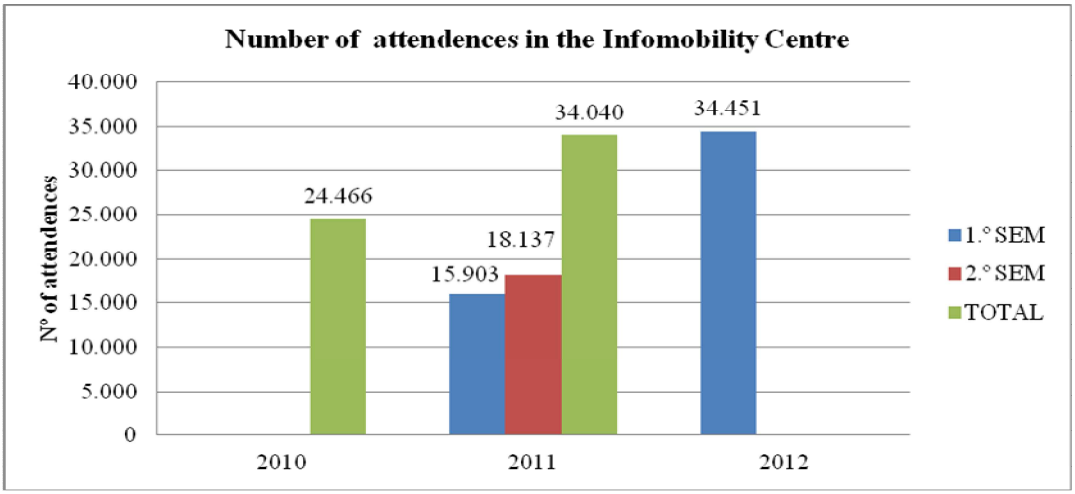
Graph C2.4.3 – RUMOS trip planner usage – Number of accesses

It is worth noting that the average number of visits per month to the site was 4688 in the first year, and after an initial period of lower number of accesses, after the month of November the number of visits augmented considerably (with special emphasis in September and October 2011 and May 2012).

Indicator 5 (Attendance at the Infomobility Centre)

The number of attendances at the Infomobility Centre is an important indicator for the qualitative evaluation of the centres attractiveness throughout time.

The next graph shows the results of the indicator 5.



Graph C2.4.4 – Number of attendances in the Infomobility Centre

The evaluation begins with the data for 2010 (the first year of complete data) due to the fact that the start-up occurred in September 2009. An increase of 39% in the number of annual attendances was registered between 2010 and 2011.

As for 2011 and 2012, data is also available by semesters. The number of attendances for the first semester of 2012 already surpasses those of the entire year of 2011, demonstrating the great positive impact the Centre has on customer behaviour.

C2.5 Society

In the same way as for the baseline, the results of the indicators were obtained after implementing the measure in September 2009. The tables C2.5.1 to C2.5.4 show the results of indicators 6, 7, 8 and 9:

Table C2.5.1: Ex-Post results of the indicator 6

Year	Awareness Level (%) – Ex-Post
2010	17 %
2011	41 %

Table C2.5.2: Ex-Post results of the indicator 7

Year	Mobility Marketing (Number of Campaigns)– Ex-Post
2009	3
2010	4
2011	3

Table C2.5.3: Ex-Post results of the indicator 8

Year	Acceptance Level – Users (%) – Ex-Post
2010	88,7 %
2011	94,5 %

Table C2.5.4: Ex-Post results of the indicator 4

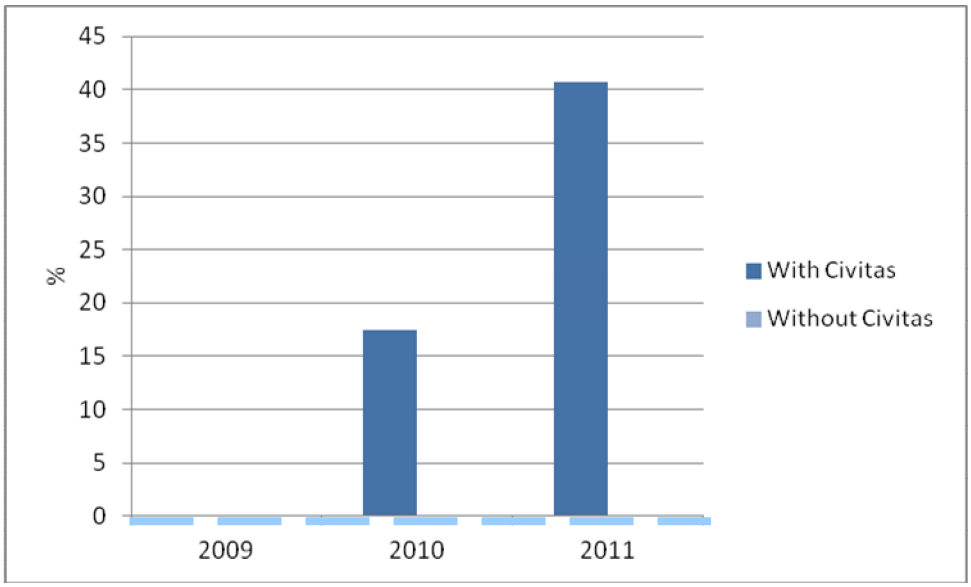
Year	Acceptance Level – Operators (%) – Ex-Post
2010	100 %
2011	100 %

The next table shows the balance of results of the Society indicators.

Table C2.4.2: Summary – Balance between Quality of PT service indicator (after/before and after/BAU)

Indicator	Before (date)	B-a-U (date)	After (date)	Difference: After –Before	Difference: After – B-a-U
6. Awareness Level	0 % (2008)	0 % (2010) 0 % (2011)	17 % (2010) 41 % (2011)	+17 % (2010) +41 % (2011)	+17 % (2010) +41 % (2011)
7. Mobility Campaigns	0 (2008)	0 (2009) 0 (2010) 0 (2011)	3 (2009) 4 (2010) 3 (2011)	+3 (2009) +4 (2010) +3 (2011)	+3 (2009) +4 (2010) +3 (2011)
8. Acceptance Level – Users	89,5 % (2008)	89,5 % (2010) 89,5 % (2011)	88,7 % (2010) 94,5 % (2011)	-0,82 % (2010) 5,03 % (2011)	-0,82 % (2010) 5,03 % (2011)
9. Acceptance Level – Operators	100 % (2008)	100 % (2010) 100 % (2011)	100 % (2010) 100 % (2011)	0 % (2010) 0 % (2011)	0 % (2010) 0 % (2011)

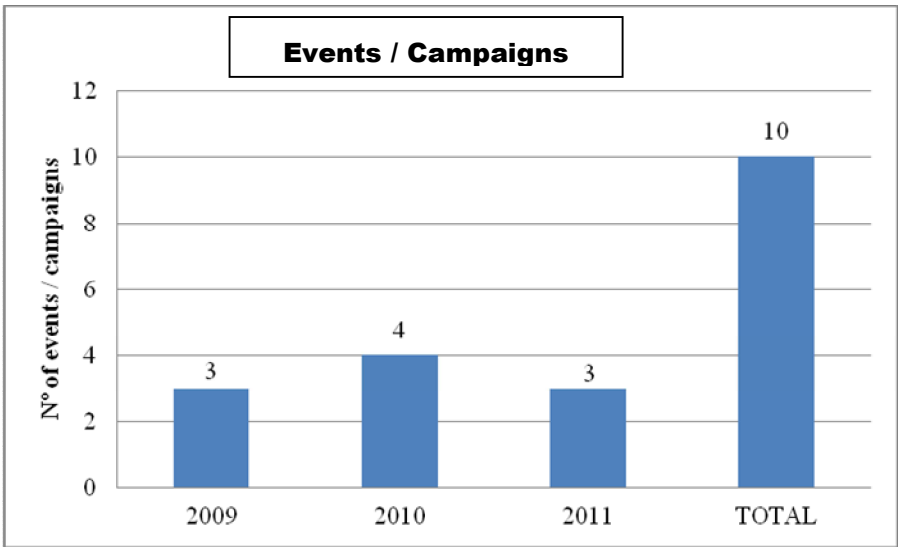
The next graph shows the evolution of the Awareness Level (%) With CIVITAS and the evolution of this indicator according to the B-a-U scenario (Without CIVITAS).



Graph C2.5.1 – Awareness level - trend without CIVITAS (BAU) and results with CIVITAS

This evolution shows that the awareness level increased steadily along with the implementation of the measure (more rapidly from 2010-2011 than from 2009-2010). The lower value of 2010 (17%) could be explained by the fact that the survey of 2010 has been carried out in March / beginning April - less than 6 months after the Centre oppened – could have contributed to a lower level of perception about the Infomobility Centre advantages.

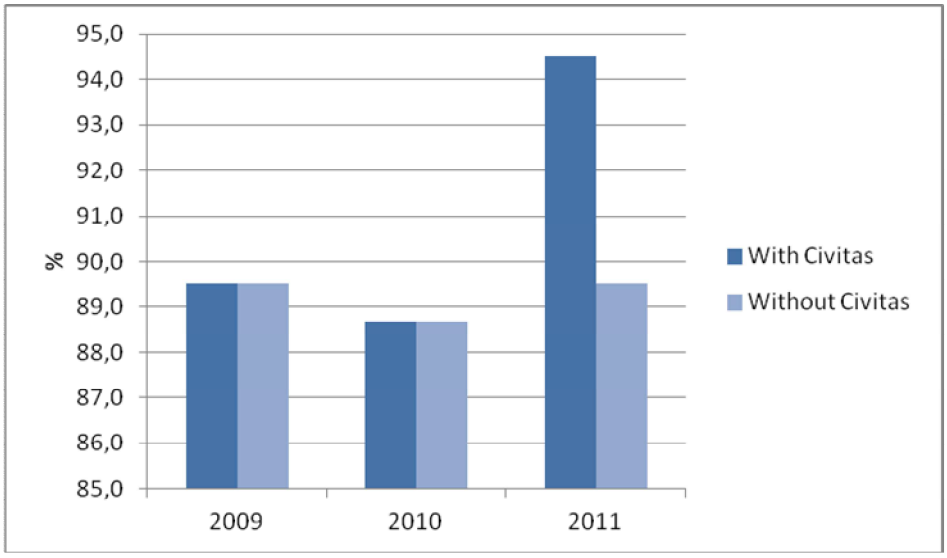
Next graph shows the ex-post results of indicator 7.



Graph C2.5.2 – Number of large-scale events hosted in the Infomobility Centre

Concerning the mobility marketing we can verify a consistency in the promotional campaigns, with 3 or 4 events / campaigns every year.

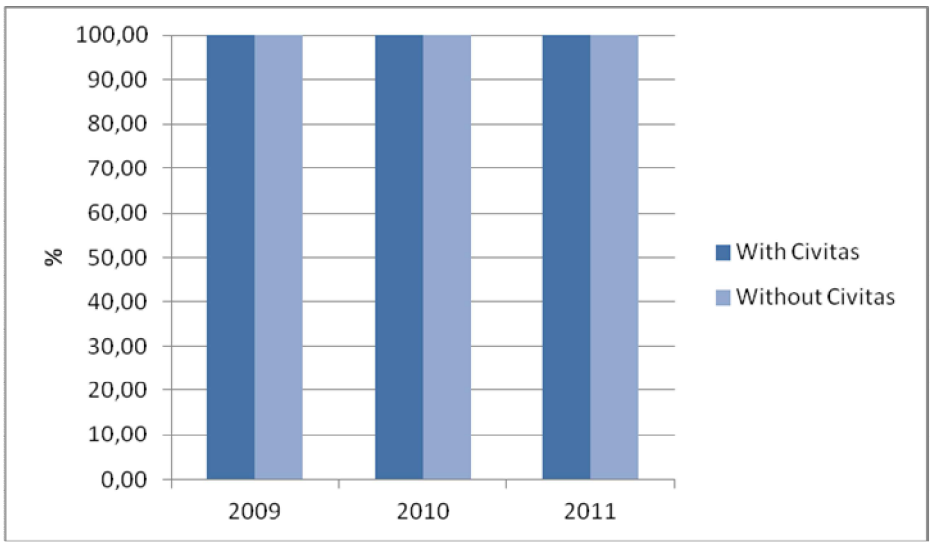
The next graph shows the evolution of the Acceptance Level – Users (%) With CIVITAS and the evolution of the Acceptance Level – Users according to the B-a-U scenario (Without CIVITAS).



Graph C2.5.3 – Acceptance level of the PT users - trend without CIVITAS (BAU) and results with CIVITAS

The results demonstrated that the Quality of PT Service continued higher (superior to 88%) and the evolution shows that the results after the implementation of the measure are lower in 2010 in comparison to those before and significantly higher in 2011. According to information from SMTUC, 2009 strikes may have influenced negatively respondents answers and therefore the 2010 results. Also the fact that the survey of 2010 has been carried out in March / beginning April - less than 6 months after the Centre oppened – could have contributed to a lower level of perception about the Infomobility Centre advantages.

The next graph shows the evolution of the Acceptance Level – Operators (%) With CIVITAS and the evolution of this indicator according to the B-a-U scenario (Without CIVITAS).



Graph C2.5.4 – Acceptance level of the PT operators - trend without CIVITAS (BAU) and results with CIVITAS

In relation to the acceptance level of the operators, it kept the same, at the maximum level (due to a high awareness level of this target group and because the Municipality and SMTUC long ago aspired to implement a Mobility Centre in Coimbra and involved all the PT operators since the beginning of the process).

The total acceptance before measure implementation was confirmed by the fact that after the specifications of this measure in the CIVITAS proposal, but before its implementation, a period of promotion and negotiations occurred and all the PT operators agreed to participate in the Infomobility Centre.

C3 Achievement of quantifiable targets and objectives

No.	Target	Rating
1	To establish a mobility centre facility in town integrating all transport operators in order to reach at least 75% of PT operators accepting the measure and 80% of PT users accepting the measure. The mobility centre facility has been established reaching 100% of PT operators accepting the measure and 95% of PT users accepting the measure. In 2011 the Infomobility Centre received 34.040 visits with an increase of 54% when compared the firsts semesters of 2011 and 2012.	***
2	To implement a public web service, which will provide an online trip planner interfaced with the SMTUC automated vehicle management (AVM) system that provides the data updates, in order to surpass 1500 accesses per month to the RUMOS trip planner. A public web service, providing an online trip planner interfaced with the SMTUC automated vehicle management (AVM) system has been implemented, reaching 4688 accesses per month to the RUMOS trip planner between 1st June 2011 and 31st May 2012.	***
3	To promote mobility marketing. Mobility marketing has been promoted through the implementation of several campaigns and events many of them happening within the mobility centre or with origin there (10 large-scale events in the total).	**
4	To increase 1,5% percentage of female passengers transported by the SMTUC. The percentage of female passengers transported by SMTUC increased by 6,2% in 2009, 6,9% in 2010 and 2,4% in 2011	***
NA = Not Assessed O = Not Achieved * = Substantially achieved (at least 50%) ** = Achieved in full * = Exceeded**		

C4 Up-scaling of results

The Operational functioning of the Infomobility Centre, the RUMOS trip planner and the respective promotional campaigns were implemented throughout the entire SMTUC network. However, considering the specific needs of travellers arriving in town from the hinterland, and given the success of the measure, the chance for the creation of a second Mobility Centre in Coimbra's railway station is being considered. However, due to the current financial crises situation in Portugal it is difficult to predict the date of construction.

The potential interest of a second Mobility Centre near the main railway station is high since the localization is very attractive for the passengers that came from outside of the city by train and need to travel in the city or in the region.

If this centre is implemented it is expected that the capital costs will be very low because the site already exists and is owned by SMTUC (less then 40 000 € for facility renewal and equipment). For this reason the operating costs will also be lower, since the renting value will be null, but also because the expected need of less personnel. Accordingly, so a yearly operating costs of 30 000 € could be a good forecasted.

Concerning the other indicators it can be expected that the new centre could contribute to an augment in the PT Service Quality and achieve the acceptance of all the PT operators, despite the acceptance level of the PT users would not be so important, because this centre will be located in a less central place than the existing one. For this reason also the Centre attendance will be certainly more reduced (approximately 20 000 customer per year).

C5 Appraisal of evaluation approach

The evaluation strategy of this measure sought to focus on a number of indicators across the areas of economy, transport and society, which were to be measured in different ways.

Taking into consideration that this measure should not have a great impact on the modal split at the city level in comparison with other CIVITAS measures implemented in Coimbra and that a survey to assess this impact concerning all the inhabitants of Coimbra would have been very expensive, it was decided that this impact will not be evaluated directly.

Since we do not have the information concerning the modal shift it was not possible to evaluate the impact of the Infomobility Centre in the change of the ticketing system.

Concerning the operating cost indicator several analyses were carried out taking in to consideration the operating costs of all the service or just those concerning the measure. The final decision was not to include all the operational revenues and the operational costs of the SMTUC services but only the operational costs directly associated with the measure.

Moreover, by taking into consideration that the objectives of the measure were the increase in the female passengers usage of PT and not the raise of this gender in the gender split, it has been decided not to include the Indicator Gender Split in the evaluation (as instead included in the Evaluation Plan). These modifications of course induced also a redefinition of the B-a-U scenario.

Another aspect to highlight is the modal split indicator removal. For this indicator it was considered that the improvements introduced along with the measure implementation had low impact in the modal split at city level comparatively with other CIVITAS measures implemented in Coimbra. For this reason it has been assumed that during the evaluation period the mitigations of environmental emissions will be null.

The final phase of the evaluation process determined the redefinition of the indicator Quality of PT Service which was related to the overall SMTUC PT service and on the final version was restricted to those quality items directly related to the measure.

C6 Summary of evaluation results

The key results are as follows:

- **Operating costs sharing** – Near 95% of the total operating costs (about 187 k€) are refered to the Infomobilty Centre with a significant ratio of personal costs (61%) and facilities hiring cost (27,%).
- **Capital costs sharing –** The capital costs of the Infomobility Centre (about 85 k€) and RUMOS Trip planner were almost similar, althought the total costs of the Infomobility Centre were ended in 2009.
- P**ositive results of the measure in terms of Quality of PT service and of centre customers satisfaction** – PT users are likely to continue satisfied after the measure implementation. These positive impacts of the measure are likely to have a positive impact in PT ridership and therefore in PT revenues due to their contribution to the increase of PT customer satisfaction. The customers satisfaction about the quality of the Centre services is also very high (more than 93% in the 2 yearly surveys).
- **High accesses growth rate of RUMOS –** The monthy avarage access to RUMOS Trip Planner during the 1st year were 4.688 accesseses in a total of 56.011 access.
- **Important growth rate of attendees at the Infomobility Centre** – At the 1st semester of 2012 the number of attendees (34.450) was higher than the annual figures of 2011 (34.040).
- **Events or campaigns promotions** – By organizing 10 campaigns and events about the measure have positive impacts revealed by the significant growth of the number of the attendees at the Infomobility Centre.
- **Good acceptance level of the Users** – Users continued to have a very good acceptance level after the implementation of the measure (between 88,7% and 94,5%). The analysis of its evolution demonstrated that these indicators after the implementation, in comparison to 2009, are lower in 2010 and higher in 2011. However, Acceptance Level had increased significantly during 2011. Strikes may have influenced negatively respondents' answers and therefore the 2010 results.
- **Increase of the awareness level –** The awareness level increased steadily along with the implementation of the measure (more rapidly from 2010-2011 than from 2009-2010) - this is a sign of the importance of measure implementation to raise awareness.
- **High Acceptance level of the Operators** – The acceptance level of the operators was already high before the implementation of the measure because the Municipality and SMTUC long ago

aspire the implementation of a Mobility Centre in Coimbra and involved all the PT operators since the beginning.

C7 Future activities relating to the measure

The mobility centre will keep working in the same way it has been working during the CIVITAS MODERN. There is the intention to open a second mobility centre close to the railway station.

The PT operator SMTUC will keep the operation of the trip planner RUMOS and promoting the implementation of mobility marketing campaigns.

Also the possibility of the extension of the "RUMOS" application to several of Coimbra's several "outdoor" Multimedia/Information check-points is being evaluated.

D Lessons learned

D1 Deviations from the original plan

The deviations from the original plan comprised:

- **Infomobility Centre functioning in a new modern place instead of an upgraded point of sales** – The Municipality and SMTUC decided to install the Centre in a new place instead of remodelling an existing point of sales. The new place, in a historic zone, required licensing with a long process of permissions that forced to change the opening date. Also the time required for the installation of the Centre had a delay given the need for more work, namely the building of interiors. So the functioning of the Centre started on September 2009 instead February 2009.

D2 Barriers and drivers

D2.1 Barriers

Preparation phase

- **Barrier 1.1 – Institutional Barrier:** Long process of procedures and routines for the licensing of the Infomobility Centre, due to the decision of its installation in a new place in the historic zone instead of the upgrade of an already existing point of sales, delayed the start-up of the installation of the Centre.

- **Barrier 1.2 – Organizational Barrier:** Despite an excellent acceptance of the measure, risk of some public transport operators not integrating the Infomobility Centre occurred in the beginning of this phase, namely while the centre costs repartition were not defined. This problem was solved since SMTUC assure the entire costs with personnel, resulting in the agreement for the participation of all operators in the centre.

Implementation phase

- **Barrier 2.1 – Technological Barrier:** The time required for the installation of the Centre had an increment given the need of more work due the decision of its installation in a new place instead of the upgrade of an already existing sales point.

- **Barrier 2.2 – Technological Barrier:** Technical complexity due to the stat-of-the-art model of trip planner chosen with RUMOS, that has required more time for the improvement of the first version delivered.

Operation phase

- **Barrier 3.1 – Cultural Barrier:** Infomobility Centre priorities were yet much more based on vending success than the sustainable mobility promotion, mainly due some operators attitude.

- **Barrier 3.2 – Technological Barrier:** Lack of digital data from regional public transport operators avoided more interoperability in the "RUMOS" trip planner until now, despite the fact that the application has achieved the objectives foreseen.

D2.2 Drivers

Preparation phase

- **Driver 1.1 – Political/Strategic Driver:** The Municipality of Coimbra City and SMTUC have a great tradition in sustainable mobility, innovation and life quality, traduced in the mobility policies that leaded to the installation of a modern mobility centre in the historic centre of the city and in a new and central place instead of the upgrade of a already existing point of sales.

- **Driver 1.2 – Financial Driver:** Availability of CIVITAS and SMTUC funding for the centre setup.

Implementation phase

- **Driver 2.1 – Financial Driver:** Availability of SMTUC funding to support all the centre installation.

- **Driver 2.2 – Organizational Driver:** SMTUC technicians motivated and involved in CIVITAS issues.

Operation phase

- **Driver 3.1 – Financial Driver:** Availability of CIVITAS and SMTUC funding for the centre management, functioning and monitoring and of the public transport operators for the Centre rent.

- **Driver 3.2 – Political/Strategic Driver:** Commitment of the Municipality of Coimbra in this measure demonstrated by the public recognition about the great interest of the centre and the availability of the Mayor and municipal councillors to participate in events linked to the centre.

- **Driver 3.3 – Technological Driver:** The "RUMOS" trip planner has been developed to allow upgrades in the future for the integration of other operators.

D2.3. Activities

Preparation phase

- **Activities 1 – Planning Activities:** The specifications of the Infomobility Centre had a special attention to include the objectives referred in driver 1.1 and the specifications of the CIVITAS measure. Great care with the planning of the design of the centre and

its installation process, including risk management and contingency plans, that allowed a fast installation time and the recovery of some of the time lost with barrier 1.1.

- **Activities 2 – Organizational Activities:** Contacts, meetings, promotions and procedures allowed the agreement of all public transport operators for its integration in the Centre during the implementation phase, avoiding the problems with the barrier 1.2. For this agreement it was important too the availability of SMTUC to support the major part of the costs.

Implementation phase

- **Activities 1 – Organizational Activities:** Taking advantage of driver 2.2, occurred a great care of SMTUC technicians in the coordination and accomplishment of the installation process of the Infomobility Centre to recover time lost with barrier 2.1. The decisions are facilitated by the fact that SMTUC was responsible for all the work (driver 2.1).

- **Activities 2 – Organizational Activity:** It was been decided to launch "RUMOS" trip planner in test conditions in the Infomobility Centre and for the SMTUC technicians in a first phase. This methodology allowed a more effective and quicker accomplishment of the system and avoided delays that could be made by the barrier 2.2.

Operation phase

- **Activities 1 – Involvement, communication Activities:** It has been carried out the promotion of the Infomobility Centre at local and national level by workshops, conferences, expert meetings, public awareness campaigns about the sustainability problems to be solved and about the measure through media activities, involvement of key stakeholders in the measure, namely politicians, commerce and industry representatives and public transport operators. These actions had also the aim to combat barrier 3.1. Could be highlighted that the activities of the European Car Free Day began in the Centre with a press conference and the launch ceremony of the new e-ticketing system chaired by the Mayor of Coimbra Municipality (taking advantage of driver 3.2). Three public transport operators participated in this event.

- **Activities 2 – Financial Activities:** The involvement of SMTUC concerning the guarantee of the infrastructure maintenance and the personnel costs of the Centre, aided by CIVITAS during the first 3 years (driver 3.1), also was contributing for the maintenance of all public transport operators in the Centre and for the achievement of the objectives defined, helping to reduce the effects of the barrier 3.1.

- **Activities 3 – Technological Activities:** The "RUMOS" trip planner has been developed to allow upgrades in the future for the integration of other operators and avoid barrier 3.2.

D3 Participation of stakeholders

D3.1 Measure partners

- **Measure partner 1 – Serviços Municipalizados de Transportes Urbanos de Coimbra (SMTUC); Public transport company; Leading role**

  SMTUC was responsible for the conception and implementation of the Infomobility Centre, as well as the inherent costs for the related activities. SMTUC also manage the Centre and supply the staff members which are responsible for selling the transport tickets and providing customer information on the regional public transport services.

  Additionally, SMTUC played an important role in the design of the technical specifications of the trip planner RUMOS and accompanied its development. After its implementation, SMTUC assumed the management of the RUMOS system as well as its maintenance expenses.

  The monitoring and data collection regarding the RUMOS Trip Planner, including evaluation material, were also carried out by SMTUC.

  The events and campaigns held at the Infomobility Centre were also promoted by SMTUC. This partner played an important role in the dissemination of the Centre and the RUMOS trip planner, namely publicising these services and products in numerous events such as conferences, workshops, seminars, etc.

- **Measure partner 2 – Critical Software (CSW); Private company; Principle participant**

  CSW was responsible for the development of the RUMOS Trip Planner and provides SMTUC with maintenance services

- **Measure partner 3 – Prodeso Ensino Profissional, Lda (PRODESO); High school; Principle participant**

  While responsible for the dissemination activities for the first three years of the MODERN project of COIMBRA, PRODESO gave some support in the promotion of the Infomobility Centre and RUMOS trip planner.

- **Measure partner 4 – Perform Energia, Lda (PE); Private company; Principle participant**

  PE was the partner responsible for the evaluation of this measure, namely analysing data and results.

- **Measure partner 5 – Câmara Municipal de Coimbra (CMC); City; Occasional participant**

  CMC supported SMTUC in its decision to launch the Infomobility Centre and in its promotion, revealing a great commitment, namely with the Mayor and political involvement in the numerous events, such as the official celebration of the 2011 European Car Free Week. Since October 2011 has been also the responsible for the dissemination of the MODERN project of Coimbra.

D3.2 Stakeholders

- **Stakeholder 1 - Regional PT Operators**

  All the regional Public Transport operators and the national railway operator jointed SMTUC in the Infomobility Centre with great interest since the beginning of it functioning.

  The public transport operators are responsible for the payment of the Infomobility Centre rent since November 2009.

  Only SMTUC has organized events in the Centre, so it is not so clear that others public transport operators are motivated in the promotion of sustainability trough the centre. They seem consider the centre more as a point of sales that a mobility centre. In any way they have leaflets with information about owner services. Some actions had been taken by SMTUC to involve public transport operators, namely inviting him to participate in the events carried out in the centre.

- **Stakeholder 2 – Car drivers**

  The target group of the events organized in the centre is mainly the car drivers. Usual media channels have been used to promote these events near the car drivers and the "RUMOS" trip planner was also a useful tool to catalyse the modal shift. The local automobile club has been represented in all the events organized in the centre.

- **Stakeholder 3 – Public transport users**

  The public transport passengers of all public transport operators were the main users of the Infomobility Centre and also a target group of the SMTUC campaigns. The integration of all these operators in the centre increased very much the quality of the service and its functionalities. The "RUMOS" trip planner has been also an important tool to help these users to plan its travels.

- **Stakeholder 4 – Visitors (shops / leisure)**

  The Infomobility Centre and the "RUMOS" trip planner help visitors to know how to travel in the city, namely such that don't know the city.

- **Stakeholder 5 – General public**

  People that had mobility needs used the Infomobility Centre to get information on the way to travel and to purchase / load tickets or passes. Events and campaigns on the centre were been also directed to the general public.

  The "RUMOS" trip planner, as an online tool, can be used by all the population anywhere.

  The dissemination and promotion of the Infomobility Centre and the "RUMOS" trip planner have been also made at regional and national level (workshops, internet, news papers and magazines,…)

- **Stakeholder 6 – Media**

Media has been a channel for the dissemination and promotion of the measure and all the events organized in the Infomobility Centre had the participation at least of the local media.

D4 Recommendations

D4.1 Recommendations: measure replication

- **A mobility centre could be important in cities with several Public Transport operators and / or want to promote good mobility practices –** The Infomobility Centre is very important in cities with several public transport operators. It helps passengers who use several different operators and modes of transport because it concentrates various operators and services in one place. Infomobility Centres also contribute to promoting soft measures and consequently can be justified in terms of improving sustainable mobility practices in most cities.

- **Attention should be done for the involvement of stakeholders and for the business model of the mobility centre –** An effort should be made to involve the largest possible number of public transport operators and other agents such as tourism services, rent-a-car, car sharing, bike sharing, renting, etc. However, business models should be well planned in advance. In Coimbra it was possible to involve all the local public transport operators, but the fact that SMTUC supported all the installation and major part of operational costs certainly contributed to this situation (74% of the operational costs are supported by SMTUC). In different conditions it is stipulated that things might not be so straightforward, namely if there are operators insensitive to customer services. However, the involvement of the municipal authorities seems indispensible. An incentive to the participation of the private operators is the fact that while SMTUC has the largest public transport service area in the municipality of Coimbra, of the 34000 customer attendances at the Centre in 2011, 55% was for services with other operators.

- **Attention to the location of the mobility centre and the need of licensing procedures –** The location of the Infomobility Centre in a central part of the city and close to the different public transport interfaces is recommended. The need of any special licensing must be took in account in advance because could delay the process.

- **Training of the mobility centre staff is very important –** Employee training is essential. In the case of Coimbra each staff member had training on the services of all the public transport operators enlisted in the Centre. Employees with a good knowledge of English were also sought out.

- **The facility of the mobility centre should consider all the expected functions –** The locale of the Centre should be able to host different sorts of events (e.g., meetings and press conferences) in order for it to be a platform for mobility promotion.

- **An on-line trip planner is crucial for cities that have public transportation services –** One of the main reasons for people not using public transport is the lack of travel information. Accordingly, the availability of an on-line trip planner is extremely important to help customers plan their travels, especially in a sustainable manner. In the case of the RUMOS trip planner, customers can choose between different options in order to customize the travel plans to their specific needs.

D4.2 Recommendations: process (related to barrier-, driver- and action fields)

- **Planning process and follow-up of the work are very important–** The delays in the installation of the Infomobility Centre could have been avoided if there was more time to plan its location. A new site was chosen in the historic centre, instead of upgrading and existing ticket centre, and implied a complex licensing period. Nevertheless, this problem is not easy to surpass considering the recommendation of locating the Centre in a central place, close to the major public transport interfaces. A rigorous planning process and follow-up of the work is also essential.

- **Negotiation process with the stakeholders must be managed carefully and the involvement of municipal entities could important–** The negotiation process with all the operators which we wish to integrate is also time-demanding. The involvement of the municipality or one of its representatives (in the case of Coimbra it was the municipal public transport operator SMTUC) is crucial to convince all the agents to commit. This barrier was surpassed due to the fact that SMTUC assumed most of the financial costs of the installation of the Centre, except for the rent (CIVITAS also contributed to staff expenses during the first three years).

- **Involvement of all measure actors and promotional events could be important to change mentalities–** Private public transport operators are more concerned with the financial aspects, rather than the issues of urban sustainability. Accordingly, they invest more in ticket sales than on the promotion of good mobility practices and information for the public. In order to change this situation, the Municipality of Coimbra and SMTUC have held several different events, such as meetings with private public transport operators and promotion of good practices, using the Centre for press conferences and other initiatives on sustainable mobility. There has been a great effort to involve all the stakeholders in order to promote more sustainable mobility behaviour.

- **Good and in time assessment to the needs and cooperation between developers and customers are important to avoid technical problems –** The greatest challenge to the implementation of the RUMOS trip planner system was its technical complexity and the need to integrate it with other systems. Accordingly, it is essential to know exactly what is needed and required in the initial specification stage, including system interoperability. Developers of the systems should be involved in all the stages. The issue is more complicated when trying to integrate other public transport operators, especially when they are not motivated. However, the more operators integrated in the trip planner the better, so the system should be developed with the possibility of integrating more operators and services. Nevertheless, the lack of established standards in this domain implies an increased dependence on system integrators, with the associated costs.

ANNEX 1 Quality of PT Service Data

Question: How do you rate your satisfaction level about the following items?

Satisfaction Level (2008)	1 - Very uns.	2 - Unsatisf.	3 – Satisfied	4 - Very Sat.	Average
6. Information at SMTUC ticket selling shops	3	45	681	257	3,21
9. Information available on the Internet	22	128	575	204	3,03
Total	25	173	1256	461	3,12

Data collection from 2008-12-04 a 2009-01-09

Satisfaction Level (2010)	1 - Very uns.	2 - Unsatisf.	3 – Satisfied	4 - Very Sat.	Average
6. Information at SMTUC ticket selling shops	3	69	593	55	2,97
9. Information available on the Internet	9	49	295	105	3,08
Total	12	118	888	160	3,03

Data collection from 2010-03-23 a 2010-03-29

Satisfaction Level (2011)	1 - Very uns.	2 - Unsatisf.	3 - Satisfied	4 - Very Sat.	Average
6. Information at SMTUC ticket selling shops	1	24	576	141	3,15
9. Information available on the Internet	6	40	398	163	3,18
Total	7	64	974	304	3,17

Data collection from 2011-03-29 a 2011-04-04

Source: SMTUC

The next table shows the evolution of the average number of days with strike on SMTUC network in each year between 2005 and 2012.

Year	2005	2006	2007	2008	2009	2010	2011	2012
Days with strike	1,2	6	4	5	11,2	5	3,1	1,2

Source: SMTUC

ANNEX 2 Awareness level Data

Question: Are you aware about the existence of the Infomobility Centre and about the services provided there?

Year of the survey (period of data collection)	Positive answers – Yes (Nr.)	Negative answers – No (Nr).	Positive answers – Yes (%)

2008 (2008-12-04 a 2009-01-09)	0	0	0
2010 (2010-03-23 a 2010-03-29)	129	611	17
2011 (2011-03-29 a 2011-04-04)	300	438	41

Source: SMTUC

ANNEX 3 Acceptance level – users Data

Question: How do you rate your satisfaction level about the following items?

Acceptance (2008)	Positive answers – Satisf. or Very Satisf. (Nr.)	Total answers (Nr.)	Positive answers – Satisf. or Very Satisf. (%)
6. Information at SMTUC ticket selling shops	938	986	95
9. Information available on the Internet	779	929	84
Total	1717	1915	89

Data collection from 2008-12-04 a 2009-01-09

Acceptance (2010)	Positive answers – Satisf. or Very Satisf. (Nr.)	Total answers (Nr.)	Positive answers – Satisf. or Very Satisf. (%)
6. Information at SMTUC ticket selling shops	648	720	90
9. Information available on the Internet	400	458	87
Total	1048	1178	89

Data collection from 2010-03-23 a 2010-03-29

Acceptance (2011)	Positive answers – Satisf. or Very Satisf. (Nr.)	Total answers (Nr.)	Positive answers – Satisf. or Very Satisf. (%)
6. Information at SMTUC ticket selling shops	717	742	97
9. Information available on the Internet	561	607	92
Total	1278	1349	95

Data collection from 2011-03-29 a 2011-04-04

Source: SMTUC

ANNEX 4 Acceptance level – operators Data

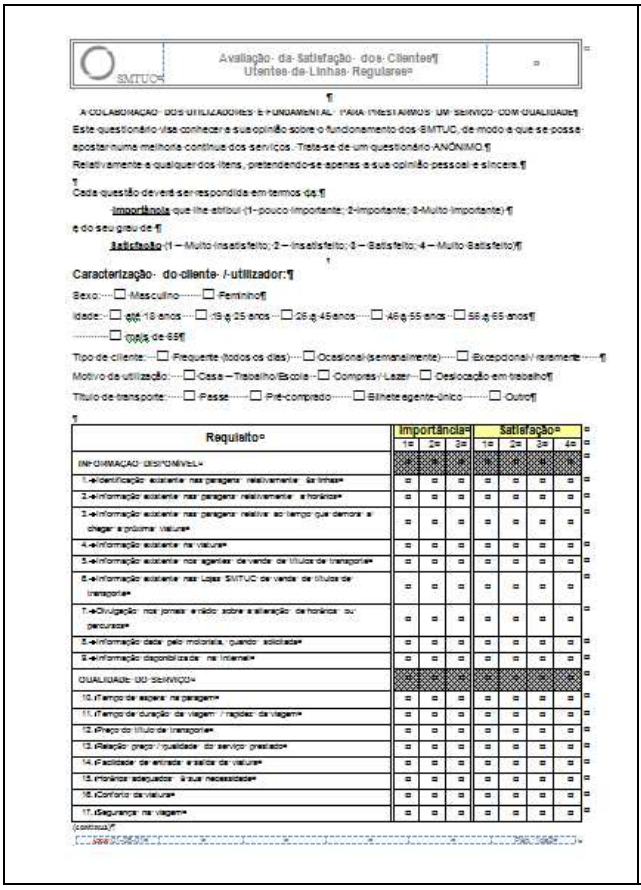
To get a qualitative assessment of attitude of operators towards the measure (before the implementation in September 2009 and after its implementation) a survey was conducted to the 4 PT operators of the Coimbra Metropolitan Area in July 2011. Although the survey was conducted after the implementation of the measure, for the e-ante data the interviewee was asked to report his answer to his attitude before the implementation of the measure (i.e., to the baseline period- 2008). The results obtained are presented in the next table:

Indicators and respective parameters	Ex-Ante values	Ex-Post values
Number of positive answers (2011-07-01 to 2011-07-13)	4	4
Number of respondents (2011-07-01 to 2011-07-13)	4	4
Acceptance level (2011-07-01 to 2011-07-13)	100 %	100 %

Source: SMTUC

ANNEX 5 Quality Survey

ANNEX 5.1 Questionnaire model



Avaliação da Satisfação dos Clientes
Utentes de Linhas Regulares

A COLABORAÇÃO DOS UTILIZADORES É FUNDAMENTAL PARA O MELHORAMENTO DUM SERVIÇO COM QUALIDADE

Este questionário visa conhecer a sua opinião sobre o funcionamento dos SMTUC, de modo a que se possa apostar numa melhoria contínua dos serviços. Trata-se de um questionário ANÓNIMO.

Relativamente a qualquer dos itens, pretendendo-se apenas a sua opinião pessoal e sincera.

Cada questão deverá ser respondida em termos da:

Importância que lhe atribui (1- pouco importante; 2-importante; 3-Muito importante)

e do seu grau de

Satisfação (1 – Muito insatisfeito; 2 – Insatisfeito; 3 – Satisfeito; 4 – Muito Satisfeito)

Caracterização do cliente / utilizador:

Sexo: ☐ Masculino ☐ Feminino

Idade: ☐ até 18 anos ☐ 19 a 25 anos ☐ 26 a 45 anos ☐ 46 a 55 anos ☐ 56 a 65 anos ☐ com + de 65

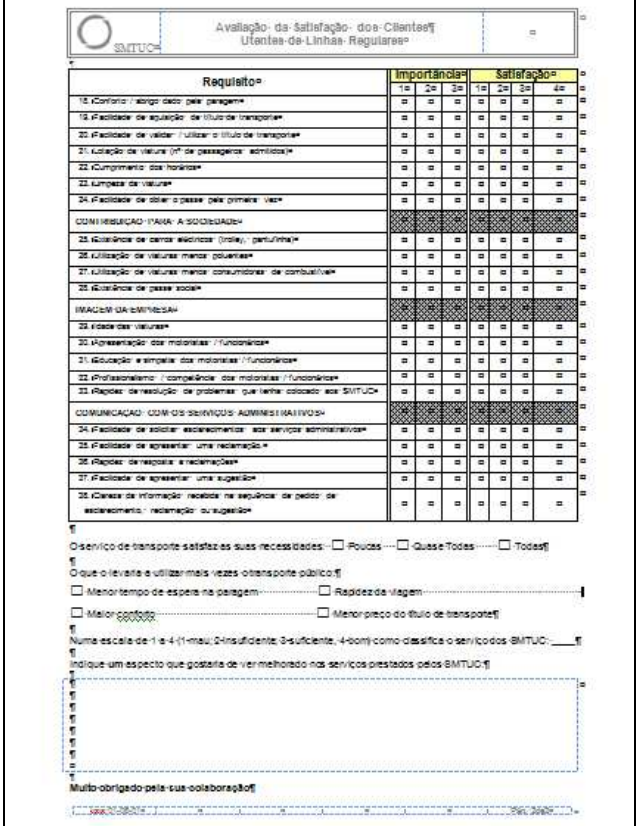
Tipo de cliente: ☐ Frequente (todos os dias) ☐ Ocasional (semanalmente) ☐ Excepcional / raramente

Motivo da utilização: ☐ Casa – Trabalho/Escola ☐ Compras / Lazer ☐ Deslocação em trabalho

Título de transporte: ☐ Passe ☐ Pré-comprado ☐ Bilhete agente-único ☐ Outro

Requisito	Importância			Satisfação			
	1	2	3	1	2	3	4
INFORMAÇÃO DISPONÍVEL							
1. Identificação existente nas paragens relativamente às linhas	☐	☐	☐	☐	☐	☐	☐
2. Informação existente nas paragens relativamente a horários	☐	☐	☐	☐	☐	☐	☐
3. Informação existente nas paragens relativa ao tempo que demora a chegar a próxima viatura	☐	☐	☐	☐	☐	☐	☐
4. Informação existente na viatura	☐	☐	☐	☐	☐	☐	☐
5. Informação existente nos agentes de venda de títulos de transporte	☐	☐	☐	☐	☐	☐	☐
6. Informação existente nas Lojas SMTUC de venda de títulos de transporte	☐	☐	☐	☐	☐	☐	☐
7. Divulgação nos jornais e rádio sobre a alteração de horários ou percursos	☐	☐	☐	☐	☐	☐	☐
8. Informação dada pelo motorista, quando solicitada	☐	☐	☐	☐	☐	☐	☐
9. Informação disponibilizada na Internet	☐	☐	☐	☐	☐	☐	☐
QUALIDADE DO SERVIÇO							
10. Tempo de espera na paragem	☐	☐	☐	☐	☐	☐	☐
11. Tempo de duração da viagem / rapidez da viagem	☐	☐	☐	☐	☐	☐	☐
12. Preço do título de transporte	☐	☐	☐	☐	☐	☐	☐
13. Relação preço / qualidade do serviço prestado	☐	☐	☐	☐	☐	☐	☐
14. Facilidade de entrada e saída da viatura	☐	☐	☐	☐	☐	☐	☐
15. Horários adequados à sua necessidade	☐	☐	☐	☐	☐	☐	☐
16. Conforto da viatura	☐	☐	☐	☐	☐	☐	☐
17. Segurança na viagem	☐	☐	☐	☐	☐	☐	☐

(continua)



Avaliação da Satisfação dos Clientes
Utentes de Linhas Regulares

Requisito	Importância			Satisfação			
	1	2	3	1	2	3	4
18. Conforto / abrigo dado pela paragem	☐	☐	☐	☐	☐	☐	☐
19. Facilidade de aquisição do título de transporte	☐	☐	☐	☐	☐	☐	☐
20. Facilidade de validar / utilizar o título de transporte	☐	☐	☐	☐	☐	☐	☐
21. Lotação da viatura (nº de passageiros admitidos)	☐	☐	☐	☐	☐	☐	☐
22. Cumprimento dos horários	☐	☐	☐	☐	☐	☐	☐
23. Limpeza da viatura	☐	☐	☐	☐	☐	☐	☐
24. Facilidade de obter o passe pela primeira vez	☐	☐	☐	☐	☐	☐	☐
CONTRIBUIÇÃO PARA A SOCIEDADE							
25. Existência de carros eléctricos (trolley, pantufinha)	☐	☐	☐	☐	☐	☐	☐
26. Utilização de viaturas menos poluentes	☐	☐	☐	☐	☐	☐	☐
27. Utilização de viaturas menos consumidoras de combustível	☐	☐	☐	☐	☐	☐	☐
28. Existência de passe social	☐	☐	☐	☐	☐	☐	☐
IMAGEM DA EMPRESA							
29. Idade das viaturas	☐	☐	☐	☐	☐	☐	☐
30. Apresentação dos motoristas / funcionários	☐	☐	☐	☐	☐	☐	☐
31. Educação e simpatia dos motoristas / funcionários	☐	☐	☐	☐	☐	☐	☐
32. Profissionalismo / competência dos motoristas / funcionários	☐	☐	☐	☐	☐	☐	☐
33. Rapidez de resolução de problemas que tenha colocado aos SMTUC	☐	☐	☐	☐	☐	☐	☐
COMUNICAÇÃO COM OS SERVIÇOS ADMINISTRATIVOS							
34. Facilidade de solicitar esclarecimentos aos serviços administrativos	☐	☐	☐	☐	☐	☐	☐
35. Facilidade de apresentar uma reclamação	☐	☐	☐	☐	☐	☐	☐
36. Rapidez de resposta a reclamações	☐	☐	☐	☐	☐	☐	☐
37. Facilidade de apresentar uma sugestão	☐	☐	☐	☐	☐	☐	☐
38. Clareza da informação recebida na sequência de pedido de esclarecimento / reclamação ou sugestão	☐	☐	☐	☐	☐	☐	☐

O serviço de transporte satisfaz as suas necessidades: ☐ Poucas ☐ Quase Todas ☐ Todas

O que o levaria a utilizar mais vezes o transporte público?

☐ Menor tempo de espera na paragem ☐ Rapidez da viagem

☐ Maior conforto ☐ Menor preço do título de transporte

Numa escala de 1 a 4 (1-mau; 2-insuficiente; 3-suficiente; 4-bom) como classifica o serviço dos SMTUC: ____

Indique um aspecto que gostaria de ver melhorado nos serviços prestados pelos SMTUC

Muito obrigado pela sua colaboração

ANNEX 5.2 Structure and questions

The questionnaire starts with 4 questions related to the interviewee – Sex, Age (<18, 19-25, 26-45, 56-65, >65),type of client (frequent, occasional, exceptional/rare use), motive of the trip (home-work/school, shopping/leisure, in service), type of ticket (pass, single ticket bought on the selling point, single ticket bought on the vehicle, other).

The main part of the questionnaire is composed of 38 specific questions related to various items related to 5 areas of the service (1-Available information, 2-Quality of service, 3-Contribution to society, 4-Image of the company, 5-Communication with the administrative services) and a specific global customer satisfaction question that resume quality of service. In each question the people interviewed express a judgement choosing between very satisfied – satisfied – unsatisfied – very unsatisfied and about the importance of each of the 38 items choosing between very important – important – low importance.

Each question is assessed in terms of importance given (1-Not important, 2-Important, 3-Very Important) and level of satisfaction (1-Very Dissatisfied 2-Dissatisfied 3-Satisfied 4-Very Satisfied) of the user in relation to the respective item.

AVAILABLE INFORMATION
1. Identification of existing lines at stops
2. Information at stops about timetables
3. Information at stops about the waiting time until the next vehicle
4. Information inside the vehicle
5. Information at ticket selling points
6. Information at SMTUC ticket selling shops
7. Disclosure of information in the newspapers and radio about timetable or routes changing[1]
8. Information given by the driver, upon request
9. Information available on the Internet
QUALITY OF SERVICE
10. Waiting time at stop
11. Trip duration / speed of travel
12. Price of the ticket
13. Relation Price / Quality of the service
14. Ease of entry and exit of the vehicle
15. Adjustment of the timetable to your needs
16. Comfort of the vehicle
17. Safety during the trip
18. Comfort / protection given by the stop shelter
19. Ease of ticket purchase
20. Ease of ticket validation / utilization
21. Capacity of the vehicle (nr. of passengers allowed)
22. Compliance with the timetable
23. Cleanliness of the vehicle
24. Facility in obtaining the travel card for the first time

[1] This question was eliminated on the 2010 and 2011 surveys.

CONTRIBUTION TO SOCIETY
25. Existence of electric vehicles (trolleybus, electric mini-bus)
26. Utilization of less polluting vehicles
27. Utilization of less fuel consuming vehicles
28. Existence of social travel card
IMAGE OF THE COMPANY
29. Age of the vehicles
30. Presentation of drivers / staff
31. Education and friendliness of the drivers / staff
32. Quality of driving performance of SMTUC drivers[2]
33. Professionalism / competence of the drivers / staff
34. Quickness in the resolution of problems you may have submitted to SMTUC
COMMUNICATION WITH THE ADMINISTRATIVE SERVICES
35. Facility in requesting clarifications to the administrative services
36. Facility in submitting a complaint.
37. Response quickness in respect to complaints
38. Facility in presenting a suggestion
39. Clarity of the information obtained in response to a request for information, complaint or suggestion

The questionnaire concludes with 5 questions in relation to the respondent's general attitude towards the service supplied by SMTUC:

1. The transportation service meets your needs (1-Few, 2-Nearly all, 3-All)

2. What would make you consider using public transportation more often (1-Shorter waiting time at stops, 2-Higher speeds, 3-Increased comfort, 4-Lower price of the ticket)

3. How do you rate the SMTUC service on a scale of 1 to 4 (1-bad, 2-poor, 3-sufficient, 4-good)

4. Indicate a point you would like to see improved in the SMTUC service:

[2] This question was not included on the 2009 survey.

ANNEX 5.3 Customer satisfaction survey results

Quality of service is measured by means of customer satisfaction survey periodically carried out by SMTUC:

The survey is repeated 1 time a year and is carried out to customers on face to face interviews on board of the SMTUC busses.

The sample is drowned on the basis of the lines used by the passengers, i.e., the number of interviewees chosen in each line is defined according to the demand of the line relative to the overall SMTUC demand.

The dimension of the sample is defined according to the specifications of the quality management auditors which supervise the all process in line with the ISO9001 standard.

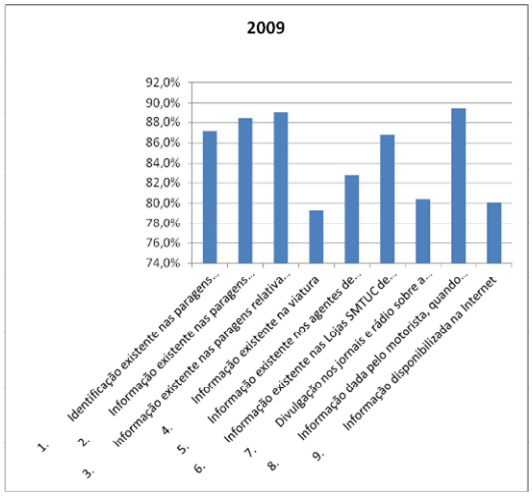
The quality management auditors considered 500 interviews as (a minimum) suitable to assess quality evaluation by PT passengers in Coimbra. However, SMTUC volunteered to go above this number. Thus, the following number of interviews and valid answers were achieved:

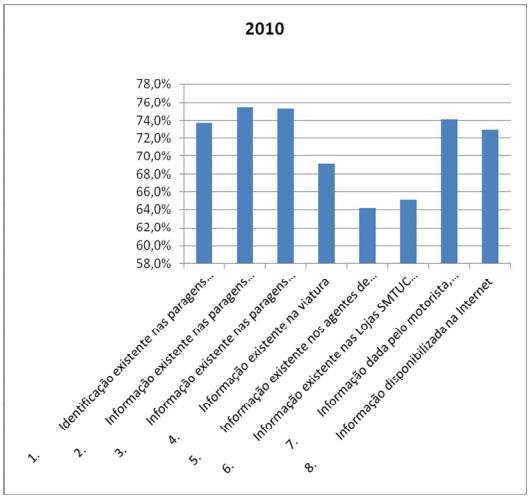
In 2009 it was obtained 1000 valid answers

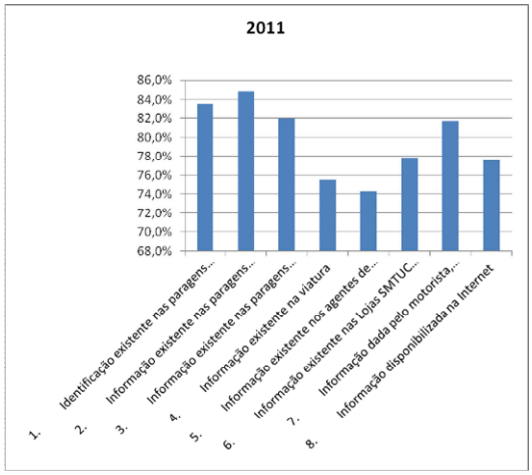
In 2010 it was obtained 750 valid answers

In 2011 it was obtained 750 valid answers

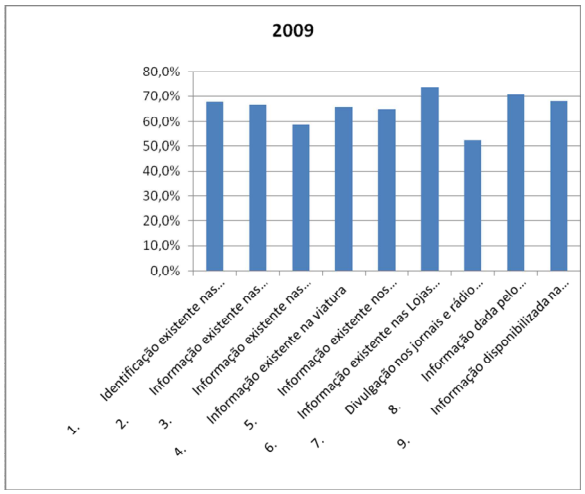
Importance given to the Available Information

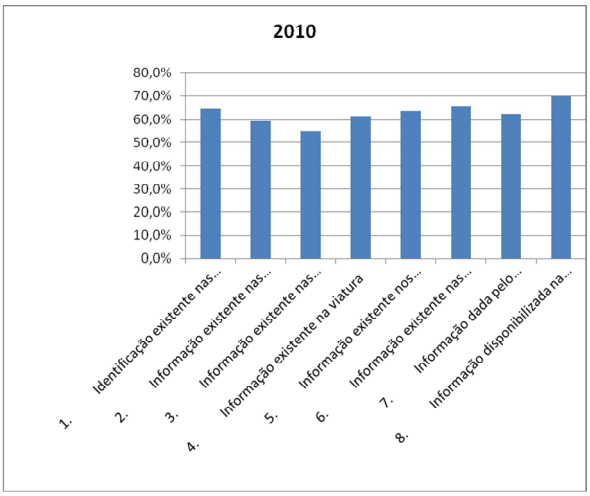


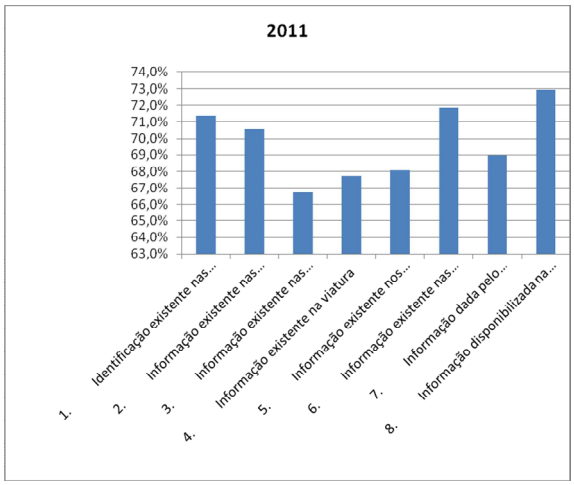


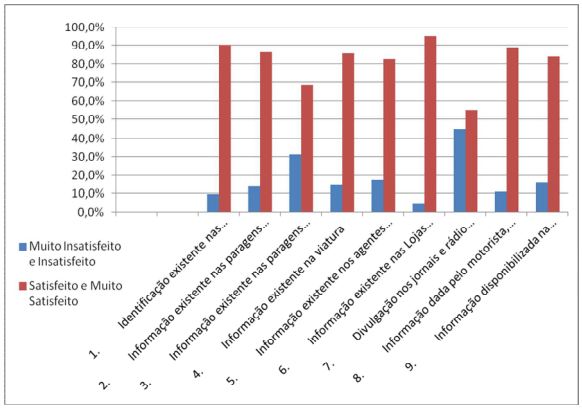


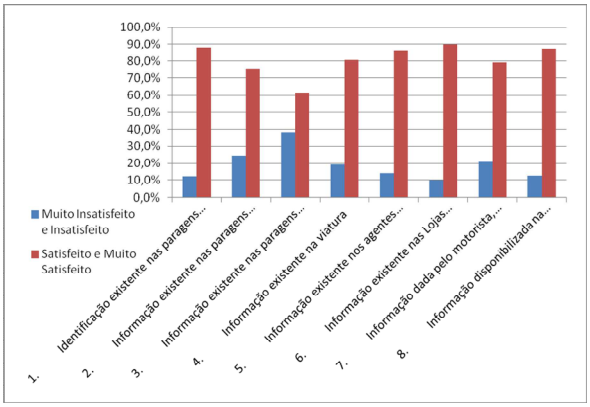
Level of satisfaction in relation to the Available Information

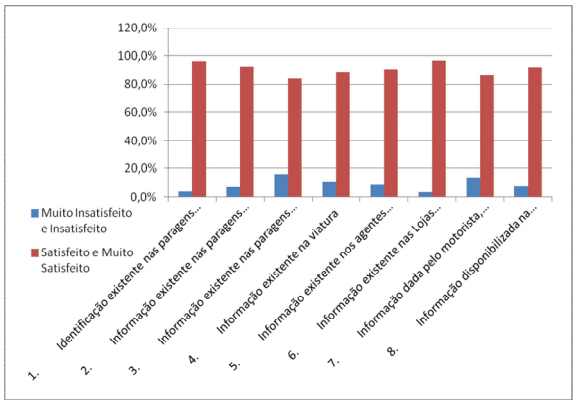




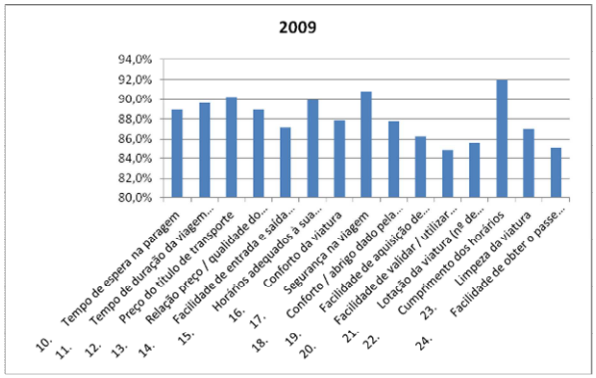

2011
74,0%
73,0%
72,0%
71,0%
70,0%
69,0%
68,0%
67,0%
66,0%
65,0%
64,0%
63,0%
Identificação existente nas...
Informação existente nas...
Informação existente nas...
Informação existente na viatura
Informação existente nos...
Informação existente nas...
Informação dada pelo...
Informação disponibilizada na...
1.
2.
3.
4.
5.
6.
7.
8.

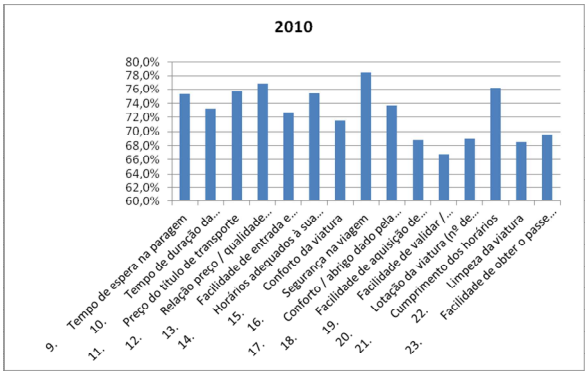

100,0%
90,0%
80,0%
70,0%
60,0%
50,0%
40,0%
30,0%
20,0%
10,0%
0,0%
Muito Insatisfeito e Insatisfeito
Satisfeito e Muito Satisfeito
Identificação existente nas...
Informação existente nas paragens...
Informação existente nas paragens...
Informação existente na viatura
Informação existente nos agentes...
Informação existente nas Lojas...
Divulgação nos jornais e rádio...
Informação dada pelo motorista...
Informação disponibilizada na...
1.
2.
3.
4.
5.
6.
7.
8.
9.

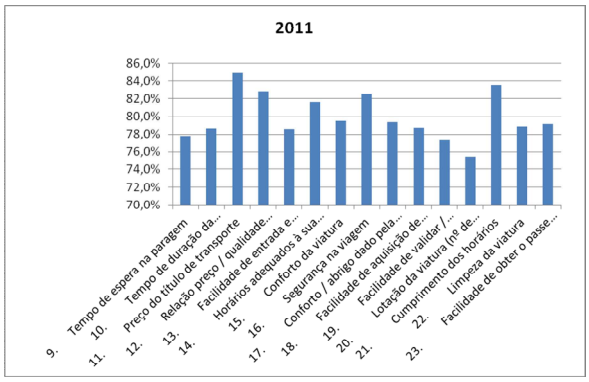

100,0%
90,0%
80,0%
70,0%
60,0%
50,0%
40,0%
30,0%
20,0%
10,0%
0,0%
Muito Insatisfeito e Insatisfeito
Satisfeito e Muito Satisfeito
Identificação existente nas paragens...
Informação existente nas paragens...
Informação existente nas paragens...
Informação existente na viatura
Informação existente nos agentes...
Informação existente nas Lojas...
Informação dada pelo motorista...
Informação disponibilizada na...
1.
2.
3.
4.
5.
6.
7.
8.


120,0%
100,0%
80,0%
60,0%
40,0%
20,0%
0,0%
Muito Insatisfeito e Insatisfeito
Satisfeito e Muito Satisfeito
Identificação existente nas paragens...
Informação existente nas paragens...
Informação existente nas paragens...
Informação existente na viatura
Informação existente nos agentes...
Informação existente nas Lojas...
Informação dada pelo motorista...
Informação disponibilizada na...
1.
2.
3.
4.
5.
6.
7.
8.

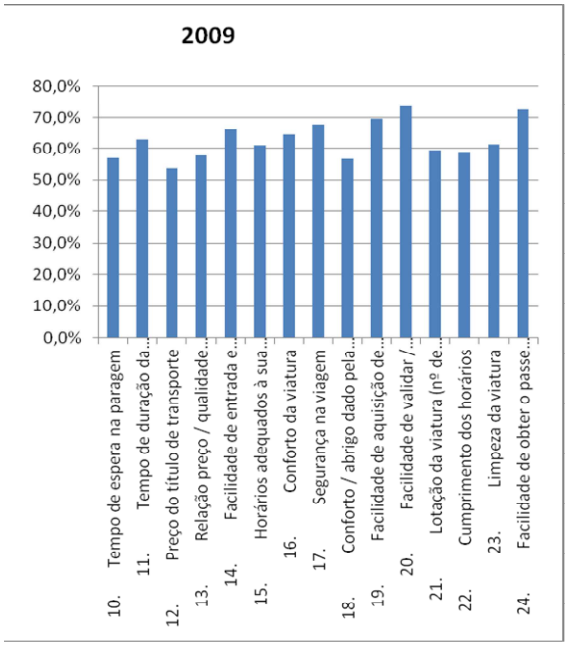
Importance given to the Quality of Service

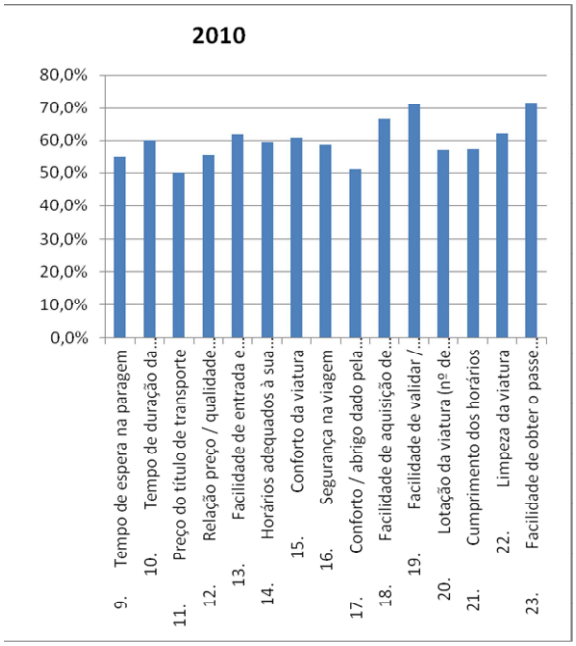


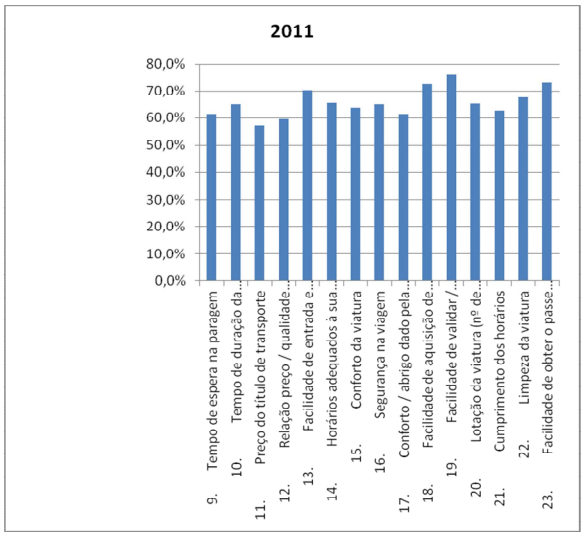


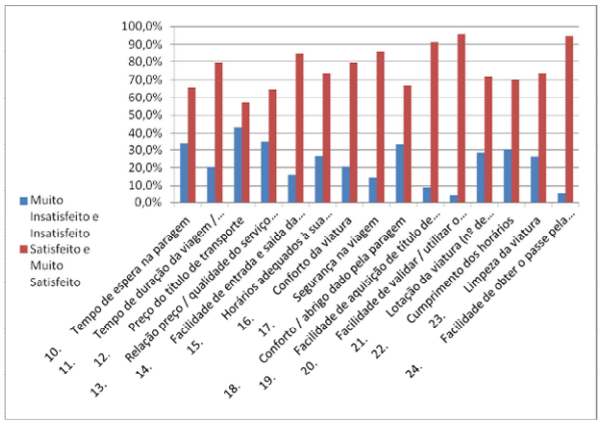


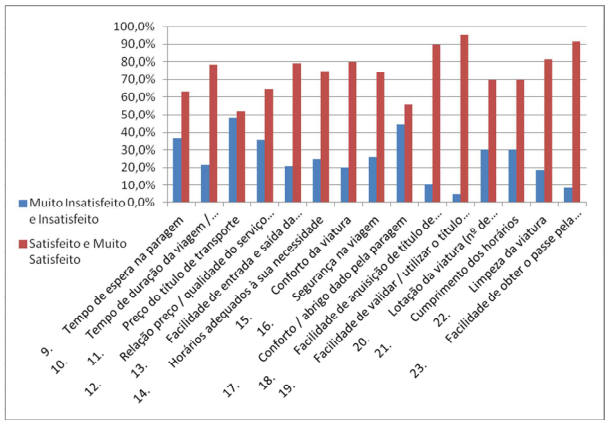
Level of satisfaction in relation to the Quality of Service

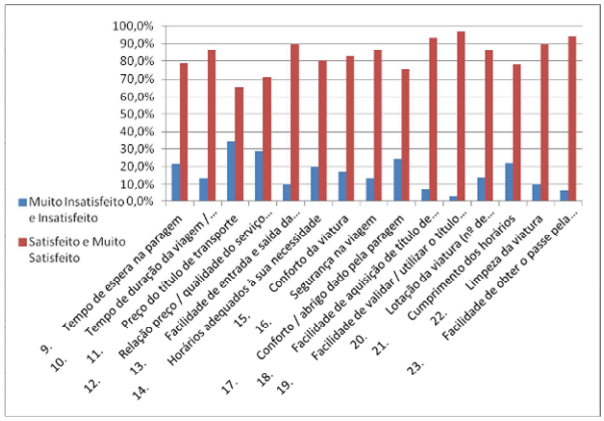




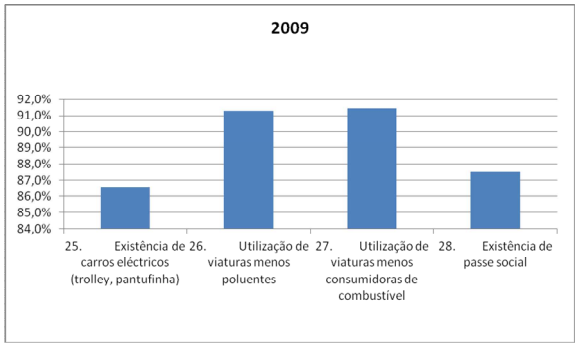

2011
80,0%
70,0%
60,0%
50,0%
40,0%
30,0%
20,0%
10,0%
0,0%
9. Tempo de espera na paragem
10. Tempo de duração da...
11. Preço do título de transporte
12. Relação preço / qualidade...
13. Facilidade de entrada e...
14. Horários adequados à sua...
15. Conforto da viatura
16. Segurança na viagem
17. Conforto / abrigo dado pela...
18. Facilidade de aquisição de...
19. Facilidade de validar / ...
20. Lotação da viatura (nº de...
21. Cumprimento dos horários
22. Limpeza da viatura
23. Facilidade de obter o passe...

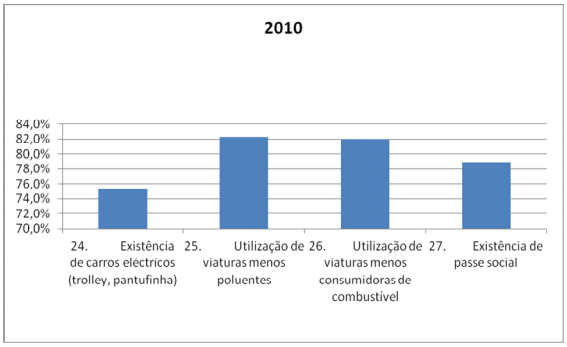

100,0%
90,0%
80,0%
70,0%
60,0%
50,0%
40,0%
30,0%
20,0%
10,0%
0,0%
Muito Insatisfeito e Insatisfeito
Satisfeito e Muito Satisfeito
Tempo de espera na paragem
Tempo de duração da viagem /...
Preço do título de transporte
Relação preço / qualidade do serviço...
Facilidade de entrada e saída da...
Horários adequados à sua necessidade
Conforto da viatura
Segurança na viagem
Conforto / abrigo dado pela paragem
Facilidade de aquisição de título de...
Facilidade de validar / utilizar o...
Lotação da viatura (nº de...
Cumprimento dos horários
Limpeza da viatura
Facilidade de obter o passe pela...

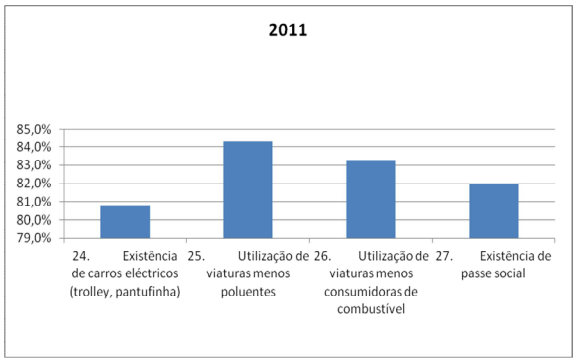

100,0%
90,0%
80,0%
70,0%
60,0%
50,0%
40,0%
30,0%
20,0%
10,0%
0,0%
Muito Insatisfeito e Insatisfeito
Satisfeito e Muito Satisfeito
Tempo de espera na paragem
Tempo de duração da viagem /...
Preço do título de transporte
Relação preço / qualidade do serviço...
Facilidade de entrada e saída da...
Horários adequados à sua necessidade
Conforto da viatura
Segurança na viagem
Conforto / abrigo dado pela paragem
Facilidade de aquisição de título de...
Facilidade de validar / utilizar o título...
Lotação da viatura (nº de...
Cumprimento dos horários
Limpeza da viatura
Facilidade de obter o passe pela...


100,0%
90,0%
80,0%
70,0%
60,0%
50,0%
40,0%
30,0%
20,0%
10,0%
0,0%
Muito Insatisfeito e Insatisfeito
Satisfeito e Muito Satisfeito
Tempo de espera na paragem
Tempo de duração da viagem /...
Preço do título de transporte
Relação preço / qualidade do serviço...
Facilidade de entrada e saída da...
Horários adequados à sua necessidade
Conforto da viatura
Segurança na viagem
Conforto / abrigo dado pela paragem
Facilidade de aquisição de título de...
Facilidade de validar / utilizar o título...
Lotação da viatura (nº de...
Cumprimento dos horários
Limpeza da viatura
Facilidade de obter o passe pela...

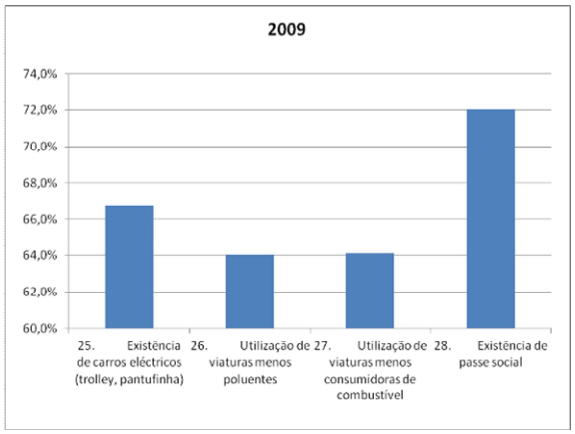
Importance given to the Contribution to Society

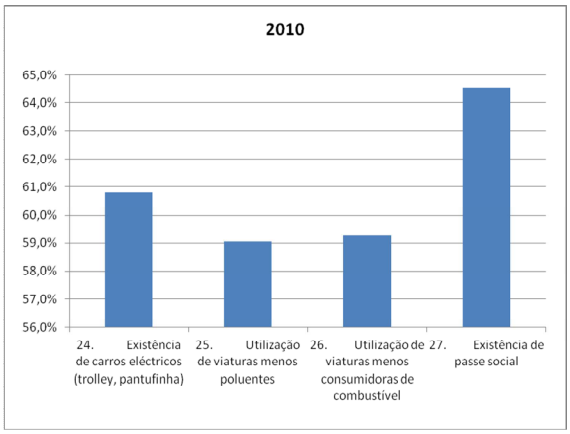


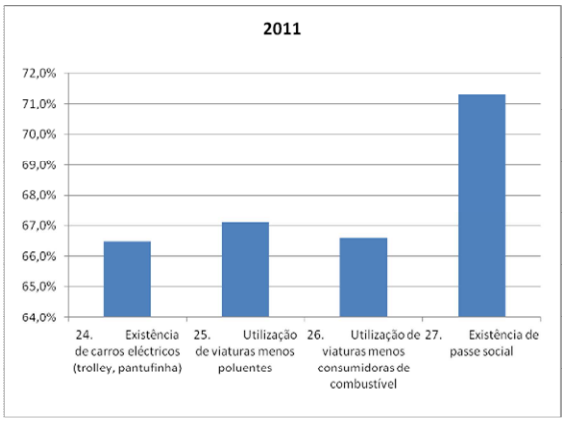


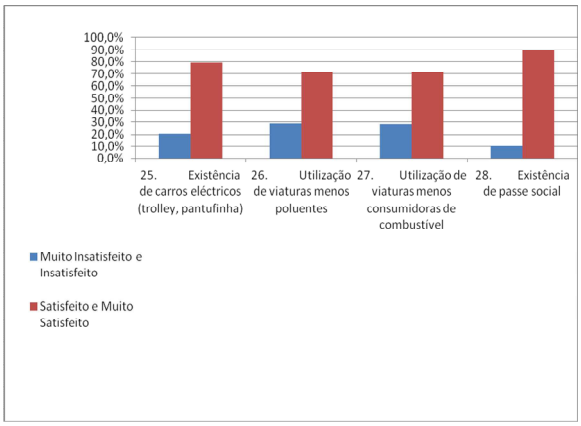


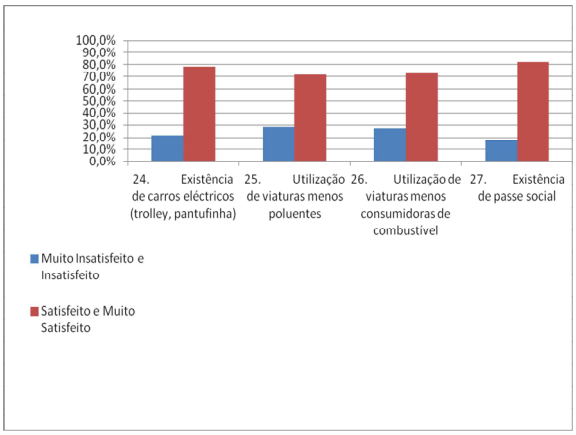
Level of satisfaction in relation to the Contribution to Society

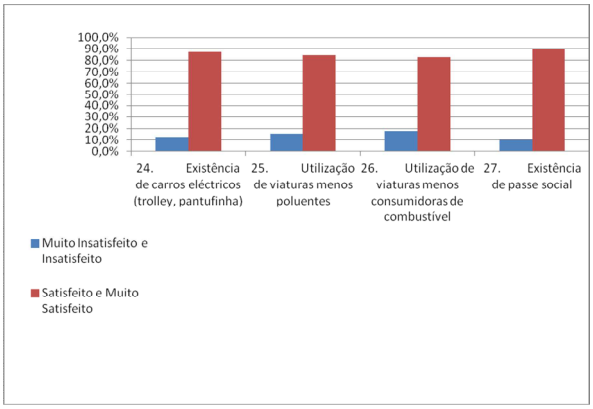




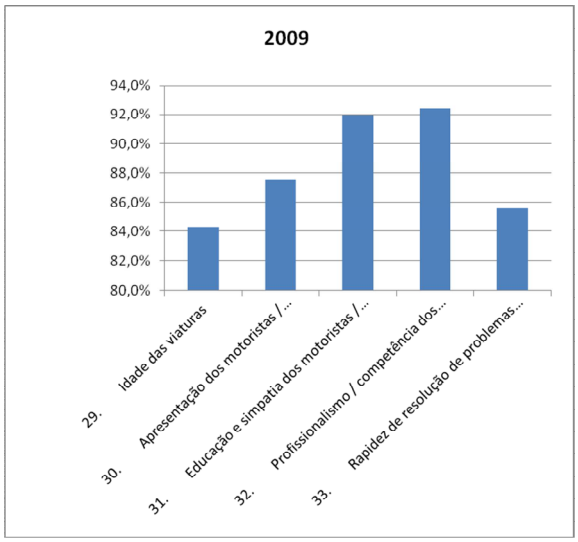


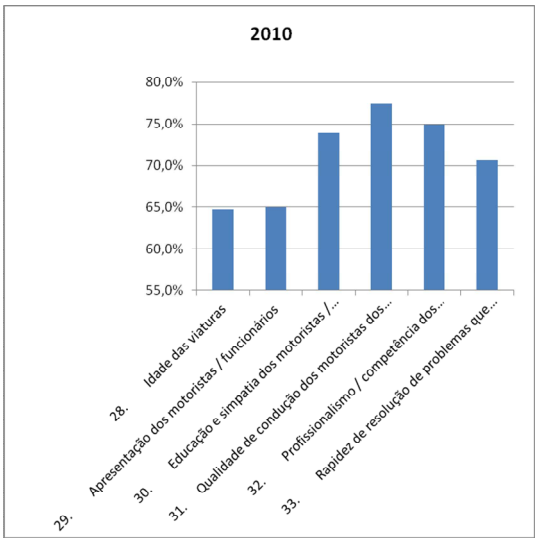


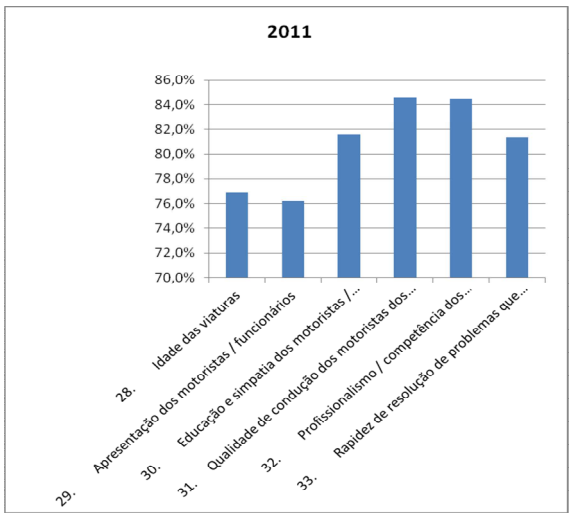




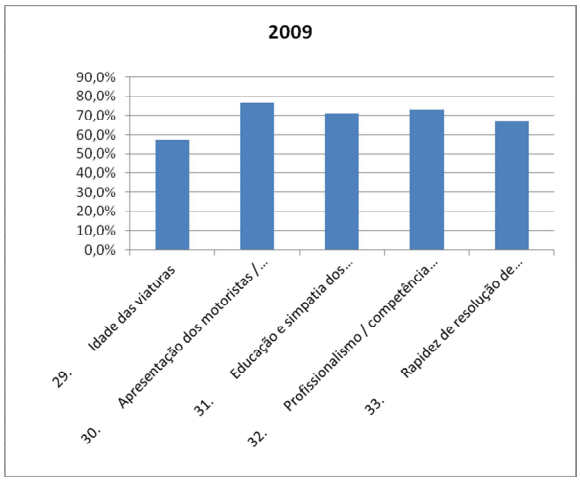
Importance given to the Image of the Company

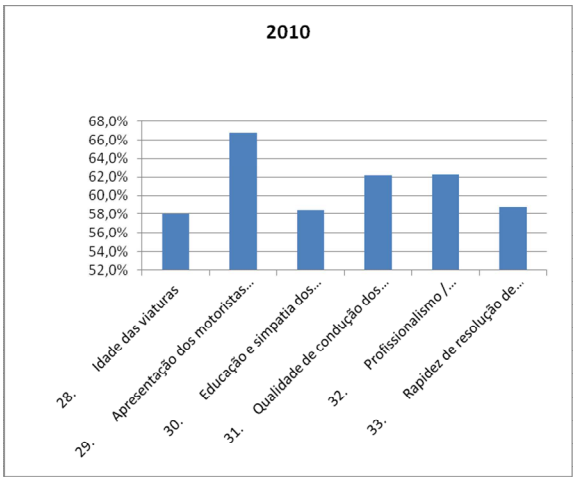


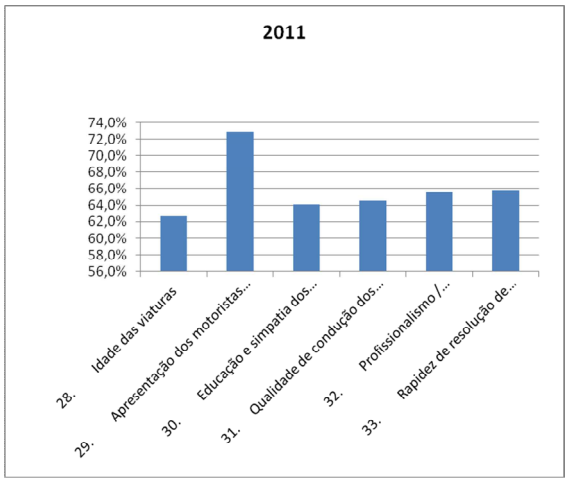


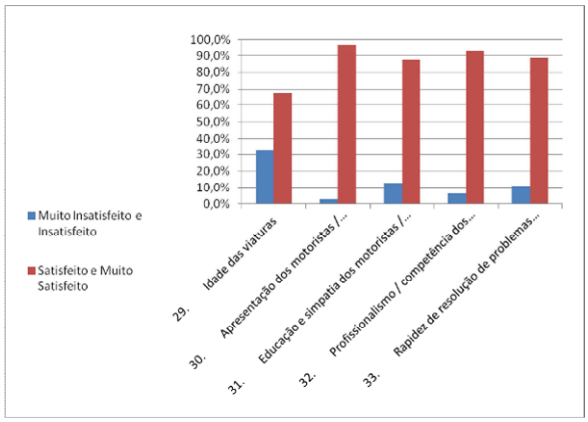


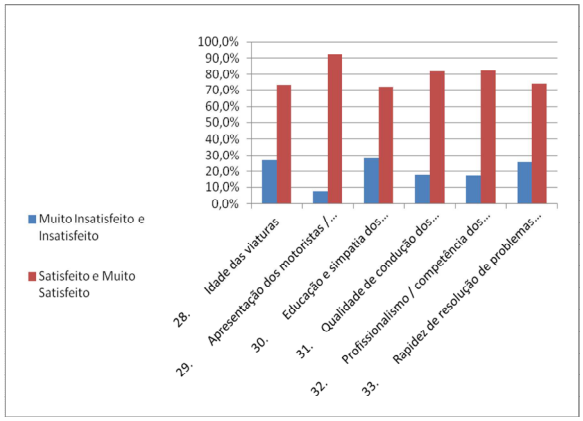
Level of satisfaction in relation to the Image of the Company

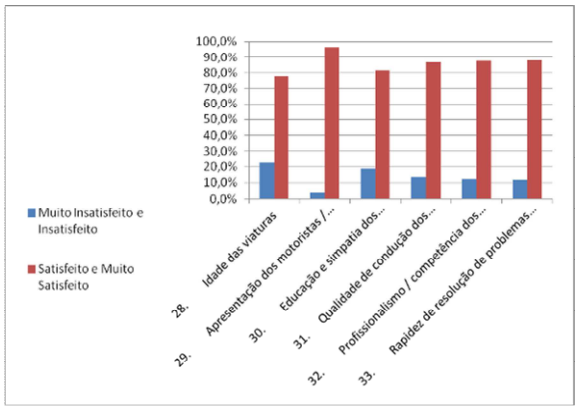




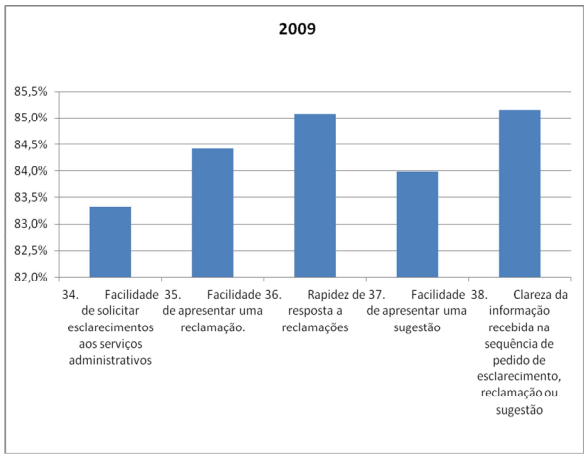


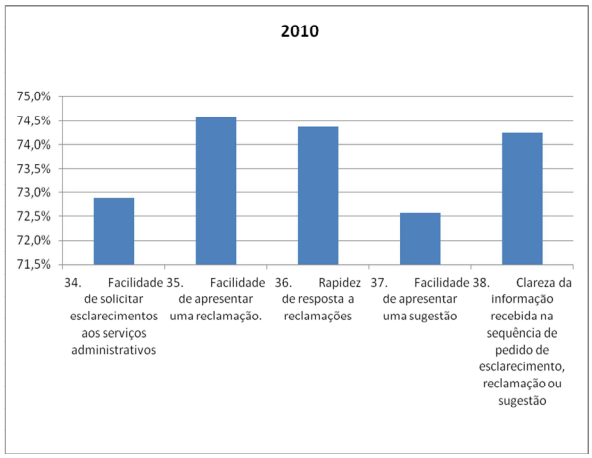


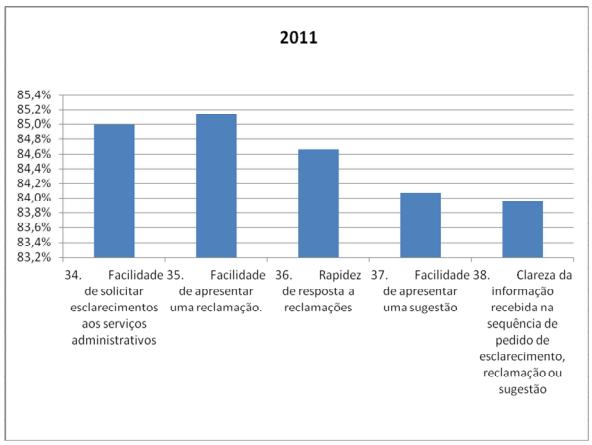




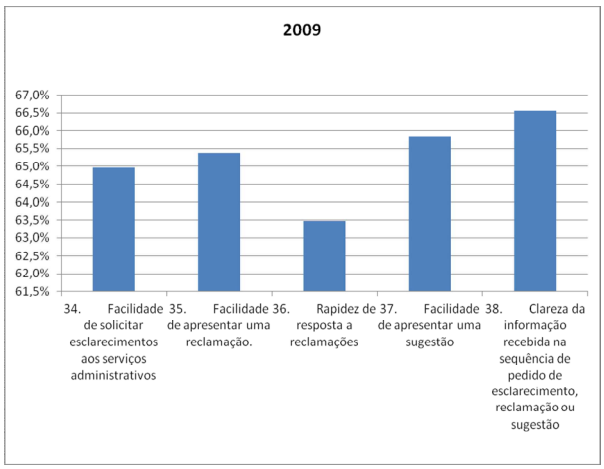
Importance given in relation to the Communication with the Administrative Services

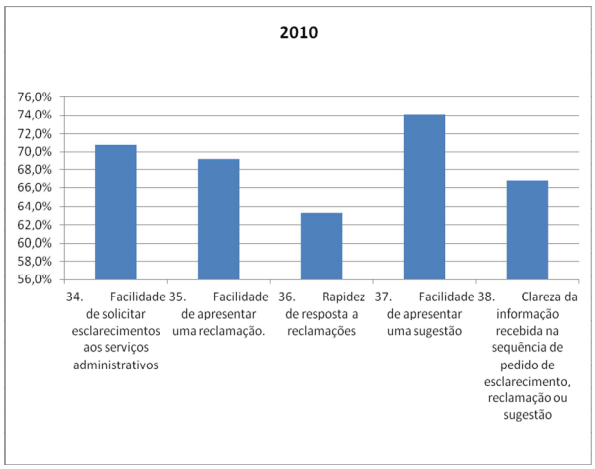


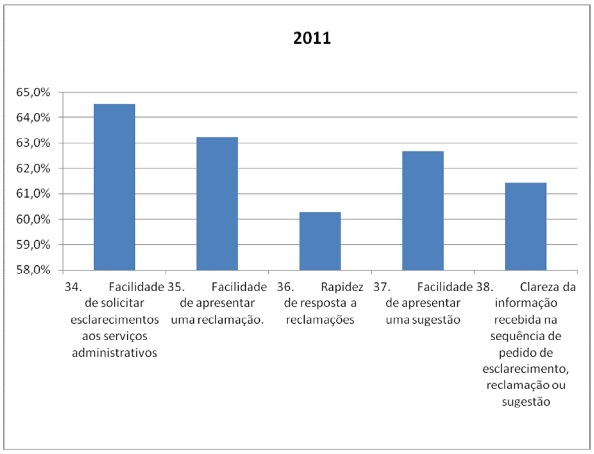


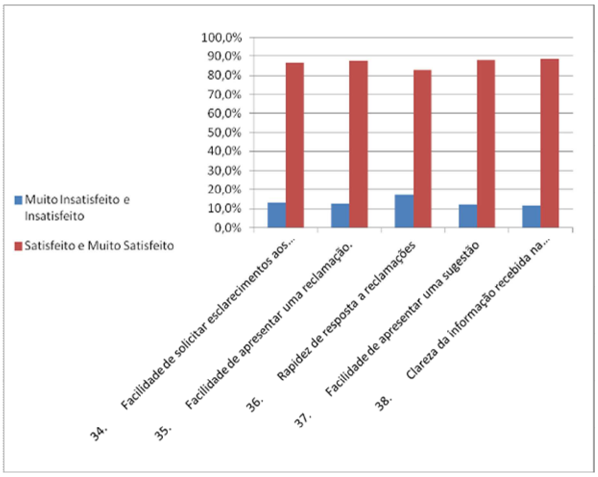


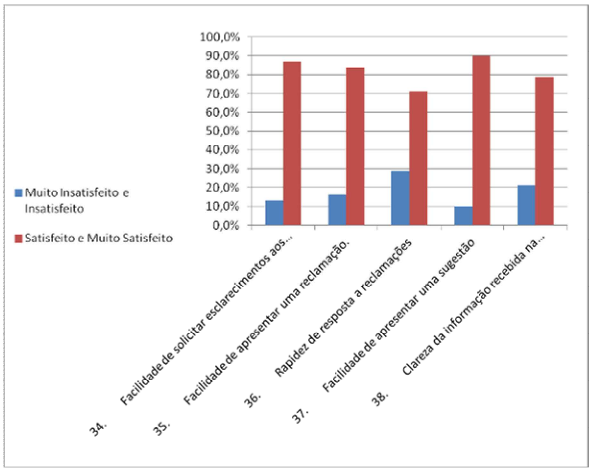
Level of satisfaction in relation to the Communication with the Administrative Services

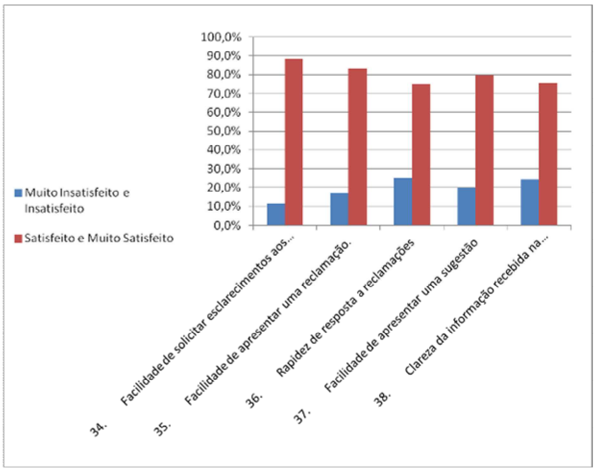






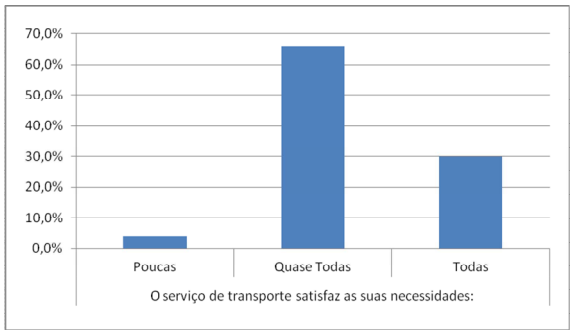


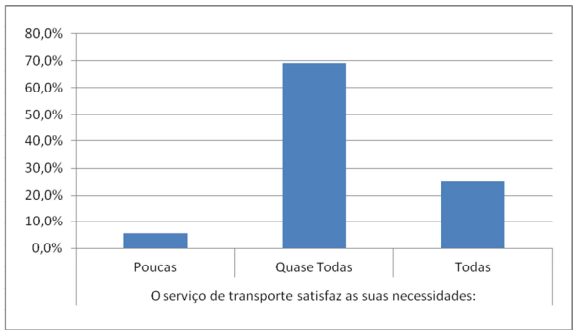




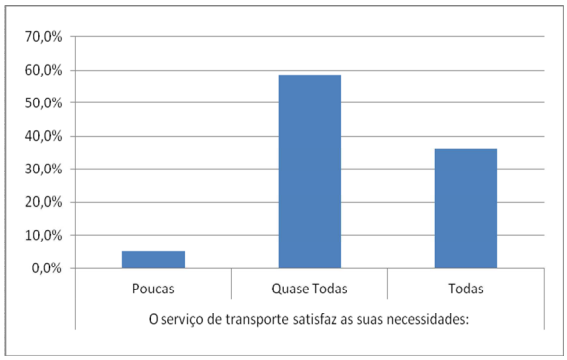
Results of the question "The transportation service meets your needs?"

2009 2010



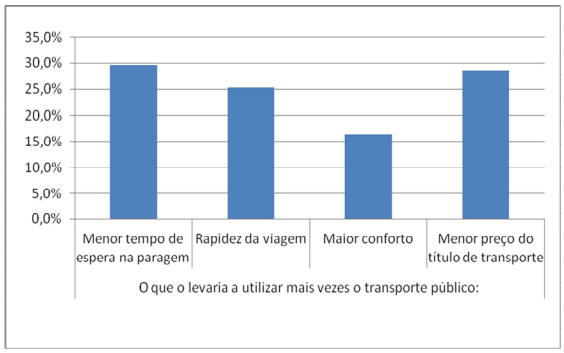


2011

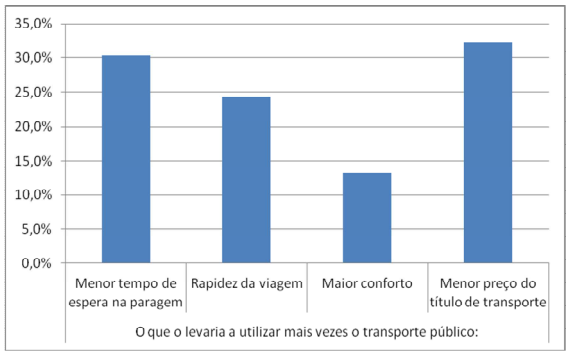


Results of the question "What would make you consider using public transportation more often?"

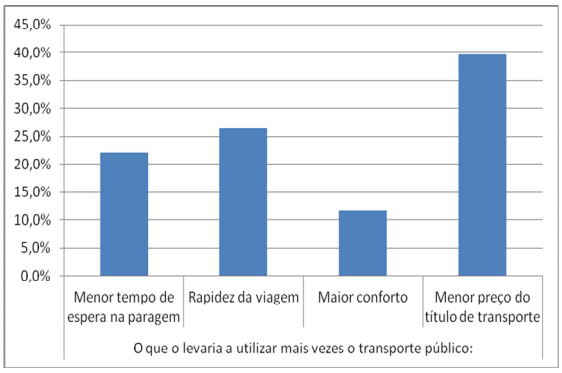
2009



2010



2011


45,0%
40,0%
35,0%
30,0%
25,0%
20,0%
15,0%
10,0%
5,0%
0,0%
Menor tempo de espera na paragem
Rapidez da viagem
Maior conforto
Menor preço do título de transporte
O que o levaria a utilizar mais vezes o transporte público: