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Measure Evaluation Results Template

Measure: FUN 8.1 - Mobility Services – SMS

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Measure title: **Mobility Services – SMS**

City: **Funchal**

Project: **CIVITAS-
MIMOSA**

Measure number: **8.1**

Executive Summary

The measure ‘Mobility Services - SMS’ aimed at reducing traffic congestion by providing on-time information to drivers. SMS is nowadays an efficient and generally accepted means of communication and is the “de facto” form of sending small written messages of all kinds among all levels/ages of citizens. Currently, most of the alerts and information provided by the Municipality of Funchal to its citizens are either published on their website or are paper based and do not reach a wide audience in providing useful timings. Usage of SMS for information on traffic events and public transport is not yet available in Funchal. Using SMS messages is one of the best ways to convey real-time information (e.g. car accident) to a critical mass of users in a very short time and in an effective manner. The overall objectives behind this initiative is optimizing traffic flow and improving the efficiency of urban transport systems. Madeira Tecnopolo (MT) was responsible for implementing the measure.

The main tangible outcome from this measure is the implemented Message Management System (MMS) platform. Measure implementation unfolded in six main stages:

Stage 1: Analysis and definition of requirements (February 2009 – September 2009 and April 2010 – May 2010) for services and the supporting technological platform to be implemented took place and, in the second phase, the first version of requirements were published.

Stage 2 Design of an appropriate solution (April 2010 – July 2010) based on two scenarios of selection of the information to be delivered and related to the conclusions drawn of stage 1 was undertaken.

Stage 3: Writing a request for proposals, selection of proposals and contract with selected subcontractor (July 2010 – November 2010) for the development of the service resulted in contract with selected subcontractor Gestools SA. in November 2010.

Stage 4: Development and Implementation - phase I: backoffice (December 2010 – February 2012) was carried out by Gestools SA and included a first fully functional prototype of the platform was available and tested in February 2012.

Stage 5: Development and Implementation - phase II: backoffice (March 2012 – August 2012) was related to the integration of the alternative information providers (ViaLitoral and ViaExpresso) and the decision/adoption of Horários do Funchal (HF) to use the platform to provide information to their clients (PT users) via SMS and email.

Stage 6: Promotion and Dissemination of the new service (June 2009 – December 2012) “Mobility Services SMS Funchal” was mainly disseminated through the following channels: Madeira Tecnopolo Homepage, CIVITAS MIMOSA Funchal Facebook pages, CMF’s Mobility Microsite, Horários do Funchal and the newsletter of the Regional Government Board of Education.

The evaluation approach taken for the measure consisted of the following phases: During implementation it involved internal / in-house testing at the developer and pilot testing with selected external users. For the final assessment and test, it consisted of defining and evaluating a number of

indicators, which are: Willingness of potential end-users/clients in using such a service; News about the service, and; Mobility experts view on the effectiveness, relevance and potential impact of the service.

Impact evaluation has revealed the following **key results**:

A Survey carried out during Expo-Madeira 2010 showed that 63% of potential clients/users of the service **consider it as useful or very useful**. This result clearly indicates that such a service is viable and attractive for Funchal. As an outcome related to public awareness, the service Mobility Services – SMS” was presented and announced 10 times on a paper or web publication.

The guided interviews with involved **mobility experts regarding the effectiveness, relevance and potential impact of the service** showed that such a service is estimated as useful and relevant. The experts expect a positive impact on optimizing traffic flow and reducing traffic jams, together with other direct and indirect benefits, contributing to an effective improvement of efficiency of urban transport systems in Funchal. Possible **communication costs** for end users and the need of reaching a **critical mass of information providers and subscribers** were revealed as decisive factors for the success of the proposed service.

Concerning process evaluation **the main barrier encountered** during the implementation of the measure was the lack of a real-time source of information concerning unexpected traffic events (e.g. traffic jam on a city entry caused by an accident or road work).

Two main drivers were identified. Firstly, the use of online interfaces facilitated the spread of all sources information which could be easily updated and improved. Secondly, the dissemination of information via SMS and email as main communication channels did not require the implementation of complex users’ interface and reduced the need of usability testing.

During the implementation of the measure, **some factors of success** have been identified and can generally support the implementation of similar measure in other cities: It is recommended to involve key stakeholders such as car drivers, public authorities, information providers, information distributors from the early beginning of the process to raise acceptance and ensure financial resources. A communication on the cost of the service for the users should be initiated since the earliest stage of the project. Furthermore it is highly recommended to start prototyping and testing the service as soon as possible in order to ensure valuable results and evaluation.

The involvement and interest of the key-stakeholders such as the municipality of Funchal, the highway operators and the public transport operator highlighted the willingness of the parties to pursue activities to improving mobility in Funchal, which ensures a future development of the service in a long-term perspective.

A Introduction

A1 Objectives

The measure objectives are:

(A) High level / longer term:

- Optimize traffic flow, thus reducing traffic jams with all the associated benefits.
- Improvement of efficiency of urban transport systems.

(B) Strategic level:

- Supporting and promoting drivers to take better and more efficient decisions before starting their journey by providing them with timely and useful traffic information (ideally in real-time).

(C) Measure level:

- (1) Provide to drivers on-time/advance useful information related to traffic via SMS broadcasts and/or email and/or RSS feeds, including accidents; closed roads/streets; road works; related construction affecting specific points and traffic jam problems);
- (2) Provide public transport (PT) related information (e.g.. temporary route alternatives);

A2 Description

This measure consisted of the development, implementation and promotion of an SMS (Short Message Service) and email based messaging service, mainly to provide traffic related information to drivers. The service is subscription based and provides on-time / advance information to drivers via SMS and email broadcasts, namely information related to traffic (e.g. closed roads/streets; road works; accidents; related construction affecting specific points; Public Transport (PT) lines updates/changes; traffic jam problems; etc). Due to difficulties, both technical and legal, in obtaining real-time traffic related events, this part is still being integrated with the three content providers. In a broader scope, such a system may also integrate in the future information services for tourism, health, civil protection, events and others (i.e., the system is scalable and expandable). “Mobility Services – SMS” service was implemented by Madeira Tecnopolo in order to be later integrated in a broader initiative, being implemented in different phases by the Municipality of Funchal, namely the creation of Funchal’s “Urban Mobility Control and Monitoring Centre” (Measure FUN 8.3). Users may register, setup and manage their account at <http://messages.inmadeira.com/Portal/Login.aspx>

B Measure implementation

B1 Innovative aspects

- **Use of new technology/ITS** - Introduction/creation of an SMS based broadcast information system (as described in this document). Currently there is no such service available in Madeira.

B2 Research and Technology Development

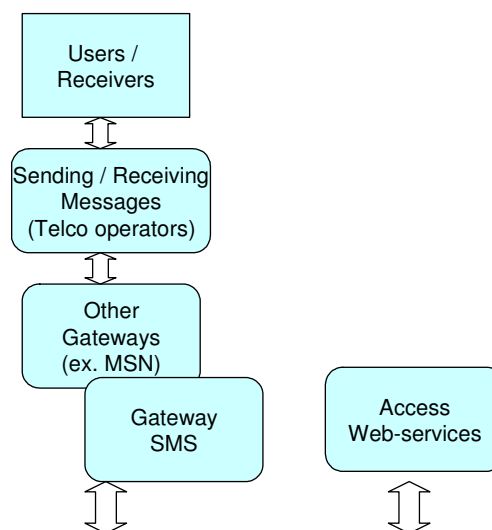
In line with CIVITAS-MIMOSA DoW for M8.1, RTD work for this measure consisted mainly in the following:

i) Analysis and definition of requirements for services and the supporting technological platform:

- Identification of the types/categories of services to implement;
- Analysis/Selection of solutions. Overview of existing solutions (State of the art analysis) and needs of specific development;
- Adjustment of requirements and functionalities (iterative task: after each main evaluation during implementation, the functionalities will be adapted and updated) (this is an iterative/recurring task);

ii) Design of an appropriate solution: The diagram below provides an architectural view of the Message Management System (MMS) platform. The acronym in Portuguese is SGM, meaning Sistema de Gestão de Mensagens.

Figure 1 depicts the architectural view of the MMS system / platform.



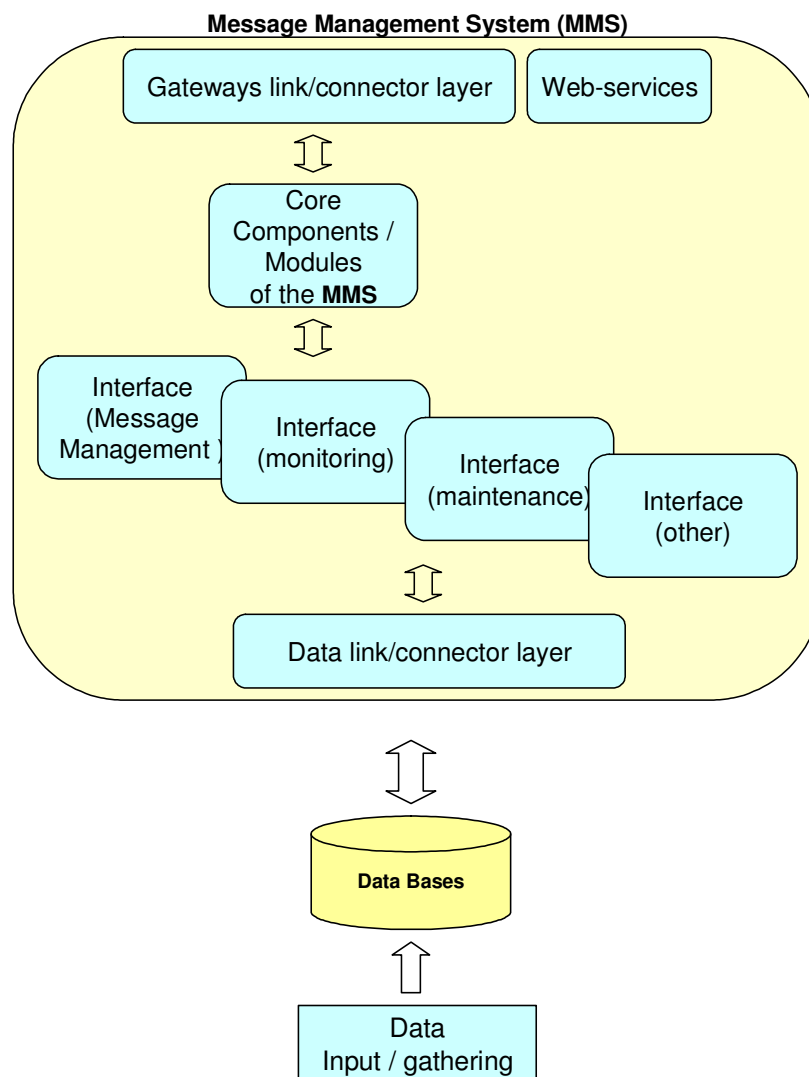


Figure 1 - The diagram shows a generic functional view of the Message Management System (MMS) implemented

Description of main parts of the MMS architecture depicted in Figure 1:

Data bases and data input: This will typically be Database (DB) with base information gathered (probably with support for multimedia elements, particularly photographs). Access to this component, the data link layer, is typically performed via web-services / XML, in a distributed manner. There may be multiple data sources in different locations. The concrete implementation for the pilot project consisted in using an existing "knowledge base" called ISNOVA, which was extended with the required web services to connect to any external/distributed compliant data source. With the transfer of the MMS platform in the future to Funchal’s “Urban Mobility Control and Monitoring Centre” the main source of information will come from the Centre’s databases.

Message Management System (MMS): The MMS incorporates components, modules, and views as illustrated in Figure 1. It works in a web based client-server model, with interfaces for each

functional component. The MMS is sufficiently modular so that different gateways can be added to support different message formats.

Data link/connector layer: Receives a request via web service (XML), accesses databases and returns the data in the required format (eg SMS, RSS, email, HTML, other).

SMS Gateways layer connectors: Each gateway receives, via "Internet", the message content (e.g. SMS) and the list of recipients (and possibly other arguments). From there broadcasting depends on the provider/operators contracted. For this pilot project the SMS service provider was LusoSMS, which then has its own connection to telecom operators for end-user broadcasting.

iii) Cooperation or contract agreements with external entities (Entities responsible for traffic management and SMS broadcast service providers)

B3 Situation before CIVITAS

There are more than 40.000 cars entering and leaving Funchal each day, an historic town/city with many irregular and narrow streets in a volcanic island of mountains and valleys. Closing of one key street or entrance to the city causes significant traffic congestion problems. Before CIVITAS MIMOSA there were no transport related SMS services available in Madeira. The idea behind this initiative is supported by the fact that SMS (and email) is nowadays an efficient and generally accepted means of communication, used by people of all ages. On the other hand, SMS is the “de facto” form of sending written text messages of all kinds among all groups of citizens. Currently, most of the alerts and information provided by the municipality of Funchal to its citizens are still paper based and don’t reach a wide audience with useful timings. SMS based service for information on traffic and public transport services is not used yet in Funchal.

B4 Actual implementation of the measure

Dates/periods presented for each stage are actual execution dates. When compared to DoW planning, stages 1 to 3 experienced a cumulative delay of about 4 months. Stages 4 and 5 added another cumulative delay of about 8 months, a total of about 12 months delay.

Stage 1: Analysis and definition of requirements (*Feb 2009 – Sept 2009 and Apr 2010 – May 2010*)

- Work carried out in this measure during this period consisted in the analysis and definition of requirements for services and the supporting technological platform to be implemented. The second period for Analysis and definition of requirements, starting in Apr 2010, is related with the publication of the first version of requirements for M8.3 and the existing dependence of measure M8.1 on M8.3.

Stage 2: Design of an appropriate solution (*Apr 2010 – Jul 2010*) Following the conclusion of a first version of the analysis /definition of requirements, a suitable solution was designed, taking a “technology specifics independence” approach;

- The actual physical location of the main platform may be later included at CMF facilities, at the Urban Mobility Control and Monitoring Centre. This part integrates with M8.3 Implementation & demonstration work (Mobility Centre Installation).

Message specification and content:

The system does not differentiate between "regular congestion" and other type of abnormal conditions (significant regular congestion is not usual). There are two types of events defined to be spread by the operational teams:

- i) Notifications about planned route cuts for the next day;
- ii) Real-time (max. 15 min delay allowed) notifications about events that influence traffic (e.g. traffic jams or road cuts).

Regarding the content of the messages they will include the location and intensity of the event (e.g. extension of traffic jam). There will be no data on alternative routes as the size of an SMS is short and there are information panels over the routes. Some types of occurrences will automatically generate messages to users and therefore there is no ability to include "suggestions". The selection of the information to be delivered is a responsibility of the data providers that integrate with the CIVITAS-MIMOSA MMS/SMS platform, and may occur in one of the following ways:

- a) By initiative of the data provider, which sends/uploads a message to the MMS system whenever they have a relevant information to be broadcasted;
- b) In pre-defined cycles where the MMS system will take the initiative to contact the data source to gather information to spread/broadcast.

The choice between the two scenarios takes into account the temporal cycles and duration of events, being that the first scenario is more suitable for informing citizens about unplanned events and of short duration, while the second fits in with events planned in advance by days. From the analysis performed, the following significant events have been identified:

- a) Start of work with route/path cutting, with or without planned ending date/time;
- b) Start and end of congestions;
- c) Start and end of track/lane closing;
- d) Programmed/planned work on the roads.

From this list, only the latter will be sent well in advance of the start. In particular broadcast of this information will be made during the night preceding the execution/implementation of the work. All other events will be propagated when registered by the operator in the Control Center.

Stage 3: Writing a request for proposals, selection of proposals and contract with selected subcontractor (Jul 2010 – Nov 2010): Writing of a comprehensive and specific request for proposals (related documents are available in Portuguese), with a clear definition of objectives and requirements. Request for proposals have been sent in October 2010 and selection and contract with selected subcontractor (Gestools SA.) was made in November 2010.

Stage 4: Development and Implementation – phase I: backoffice (Dec 2010 – Feb2012): Development and Implementation is being carried out as defined by the contract made with Gestools SA. The 1st fully functional prototype of the platform was available and tested in February 2012.

Figure 2 presents the screen interface for managing user information and the list of categories of information available for subscription (Sports Agenda; Fairs; Cultural Agenda; Cinema Agenda); Location (if applicable); Delivery mode (SMS or email) and Cost (if applicable).

SGM Funchal

Utilizador

Nome: Lucio Quintal **Email:** lucio.q@gmail.com **Débito Total:** €0 [Editar](#) [Logout](#)

Subscrições

Nome	Localização	Modo de Entrega	Preço		
Agenda Desportiva da Madeira Deporto na Madeira	---	Email	€0	Editar	Remover
Festas e Feiras Festas e Feiras na Madeira	---	SMS	€0	Editar	Remover
Agenda Cultural da Madeira	---	Email	€0	Editar	Remover
Cinema na Madeira	---	SMS	€0	Editar	Remover

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Figure 2 - Screen interface for managing user information, list of categories of information and delivery mode (SMS or email).

Figure 3 presents the screen interface for the configuration of a subscription for a category of information.



Subscrição

Configuração do Serviço

Nome do Serviço:	Cinema na Madeira		
Categoria:	1		
Cobertura Geográfica:	Latitude Superior Esquerda	Longitude Superior Esquerda	
	32.665971851657815	-16.95503807067871	
	Latitude Inferior Direita	Longitude Inferior Direita	
	32.651519688147744	-16.9378719329834	
Localização:	Funchal		
Modo de Entrega:	Email		

Configuração de Periodicidade

Período de Recepção (Horas):	De	0:00	Até	23:59				
Período de Recepção (Dias):	Dom	Seg	Ter	Qua	Qui	Sex	Sab	
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Período de Cobertura:	De	0h	Até	24h				
Periodicidade:	Enviar notificação a cada				1	dia(s) e	0:00	hora(s)

Gravar Cancelar

Mapa



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Figure 3 - Configuration of a subscription for a category of information: Location area; Frequency and Delivery channel (SMS or email). Top-left: Name of service, Area, Location and Delivery method; Bottom-left: Periodicity; Right: Selection of area for wanted events.

Stage 5: Development and Implementation – phase II: backoffice (Mar 2012 – Aug 2012)

Related to the integration with the alternative information providers (ViaLitoral and ViaExpresso) and the late decision/adoption of Horários do Funchal (HF) in deciding to use the platform to provide information to their clients (PT users) via SMS and email. Despite being a late decision of HF, it is a very important one as a means of adding value to the platform and content information provided. It must be noted that the MMS platform is fully functional and requires only the conclusion of integration with real-time traffic information providers, which are:

- The Public Transport Operator (PT) “Horários do Funchal”;
- The highway/ high-speed operators “Via Litoral” (which manages the main accesses around Funchal and south part of the island), and;
- “Via-Expresso” (which manages high-speed secondary accesses).

Stage 6: Promotion and Dissemination of the new service (Jun 2009 – Dec 2012)

The platform is fully functional, but because real-time traffic information is not yet included/available, the service has not been made public so far. As soon as traffic information from ViaLitoral,

ViaExpresso and/or Horários do Funchal becomes available it will go public, which is previewed for November 2012.

“Mobility Services SMS Funchal” was mainly disseminated through the following channels: Madeira Tecnopolo Homepage, CIVITAS MIMOSA Funchal Facebook pages, CMF’s Mobility Microsite, Horários do Funchal and Regional Government Board of Education newsletter.

B5 Inter-relationships with other measures

The measure is related to other measures as follows:

- Measure M8.3 – The MMS (Message Management System) platform implemented under Measure FUN M8.1 will be integrated, both logically and physically, with CMF municipality “Mobility Control and Monitoring Centre” being created under Measure FUN M8.3. The data-level integration with the broader CMF service for communication with the citizens is an important base requirement in the sense that the system must be able to retrieve data/information becoming available at the centre. Interconnection between data sources and the MMS is implemented via web services. As the “Mobility Control and Monitoring Centre” becomes operational, the MMS platform will be transferred from Madeira Tecnopolo datacentre to CMF’s Mobility Centre servers.
- It should be noted that the service and platform developed under this measure (Mobility Services – SMS) will become operational under CMF’s “Mobility Control and Monitoring Centre” operation in the future even if it doesn’t happen within the time span of the MIMOSA project.

C Impact Evaluation Findings

C1 Measurement methodology

Impact evaluation comprised the time frame of December 2010 - September 2012. Because of the delay/difficulty in obtaining real-time traffic information to be provided by the system in time for measurement and evaluation, some indicators initially defined could not be assessed and had to be dropped (as of October 2012 provision of real-time traffic information is still being integrated and not yet available for end-users). Indicators not assessed were:

1. Number of subscribers to the service;
2. Number of SMS and emails sent by subscriber per month, as well as the type/category of information provided;
3. Number of events presenting the service;
4. Questionnaire/survey for subscribers of the service to assess its service quality. The survey is available at <http://www.surveymonkey.com/s/Y9VYPRB>. First users will be invited to report about their experiences 1 month after service launch/usage;

The alternative evaluation approach taken for measure 8.1 consisted in measurements for two indicators and running a guided interview with mobility experts in context of a qualitative evaluation. The three indicators assessed included:

1. Survey on the willingness of potential end-users/clients in having traffic information on their mobile phone. The survey was completed by visitors to Expo-Madeira 2010, which resulted in 792 valid answers;
2. News about the service;
3. Guided interviews with mobility experts for a qualitative evaluation on the effectiveness, relevance and impact of the service as implemented/proposed.

Evaluation consisted of assessing the Public Support, Public Awareness and Quality of Service of the system as it is also described in detail in the following table of indicators and in its descriptions.

C1.1 Impacts and Indicators

Table C1.1: Indicators

Table C1.1: *Specific impact indicators related with measure FUN8.1*

Evaluation category	Evaluation sub-category	Impact	Indicator	Description and Source of data	Success quantification	Baseline	After Data collection
Society	Acceptance	Public Support	1 – willingness of potential end-users/clients in using such a service	Data unit: Level of interest of potential users Source: Survey made to the visitors of Expo-Madeira 2010	Achieving at least 50% of positive answers	N/a	2010
		Public Awareness	2 - News about the service	Data unit: Number of articles / news pieces published during project lifetime Source: as registered / presented	Achieve at least 5 publications to increase awareness	N/a	2012
		Estimated Effectiveness	3 – Mobility experts view on the effectiveness, relevance and potential impact of the service	Data unit: Level of evaluation/feedback of experts. Source: Guided interview with mobility experts, recorded transcribed and summarised	Achieve a satisfactory level of evaluation/feedback of experts on the effectiveness, relevance and potential impact of the service	N/a	2012

Detailed description of the indicator methodologies:

- **Indicator 1** (*willingness of potential end-users/clients in using such a service*) – Analysis of answers to question «Indicate the degree of usefulness that the following service could have for you: Information about the traffic on your phone» in the survey of visitors to CIVITAS-MIMOSA stand at Expo-Madeira 2010 (792 answers collected). Indicator 1 relates to measure objectives at level C (measure level).
- **Indicator 2** (*News about the service*) – Count the number of articles / news pieces published during project lifetime. Achieve at least 5 publications. Indicator 2 relates to measure objectives at level B (strategic level).
- **Indicator 3** (*Mobility experts view on the effectiveness, relevance and potential impact of the service*) – Running a guided interview with mobility experts. Topics discussed related to Mobility in Funchal, in particular in relation to traffic and to this service specifically (expected improvements in traffic flow; advantages for users, etc). The aim was to obtain the experts view on the effectiveness, relevance and impact of the service. Indicator 3 relates to measure objectives at level A (high level / longer term).

For the reasons already indicated in Section B4 – Stage 6 above, namely the difficulty in obtaining real-time traffic information, some indicators initially defined could not be evaluated. Indicators not assessed are listed in Table C1.2:

Measure title: **Mobility Services – SMS**

City: **Funchal**

Project: **CIVITAS-MIMOSA**

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Table C1.2: Impact indicators not assessed for measure FUN8.1

Indicator not assessed
Number of subscribers of the service
Number of SMS and emails sent by subscriber per month, as well as the type/category of information provided
Number of events presenting the service
Questionnaire/survey for subscribers of the service to assess its service quality (the survey is available at http://www.surveymonkey.com/s/Y9VYPRB)

C1.2 Establishing a Baseline

Since this service didn't commence prior to October 2012, there's no baseline data:

- **Indicator 1** (*Willingness of potential end-users/clients in using such a service*) –The survey related with this indicator was carried out in July 2010;
- **Indicator 2** (*News about the service*) – 0 articles / news pieces;
- **Indicator 3** (*Mobility experts view on the effectiveness, relevance and potential impact of the service*) – N/A;

C1.3 Building the Business-as-Usual scenario

Building a Business-as-Usual scenario does not apply to this pilot service. Despite that, we may say that there is a great potential for adoption of users to this type of service, namely if it takes into account recommendations of experts as presented in Table C2.5.3 (e.g. Free SMS messages and provided that quality of service is guaranteed in terms of rapid, sufficient, real-time and reliable information). As surveyed, 63% of potential clients/users of the service consider it as Useful or Very useful.

C2 Measure results

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

C2.1 Economy - N/A

C2.2 Energy - N/A

C2.3 Environment - N/A

C2.4 Transport - N/A

C2.5 Society

Indicator 1: Society → Acceptance → Willingness of potential end-users/clients in using such a service

Acceptance and expected public support of potential clients/users of the service was evaluated by questioning visitors to the CIVITAS-MIMOSA stand at Expo-Madeira 2010. The question was part of a survey which resulted in 792 valid answers from participants. The specific question related to this service was the following: - **Indicate the degree of usefulness that the following service could have for you: Information about the traffic on your phone.**

Analysis of collected answers are summarized in Table C2.5.1. Achieving at least 50% positive answers is considered as a successful result for this indicator.

Table C2.5.1: Ratings for indicator 1

Option for answer	Percentage
Very useful	23%
Useful	40%
Fairly useful	18%
Not useful	6%
No opinion	13%

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From the collected answers we conclude that 63% of potential clients/users of the service consider it as Useful or Very useful. This result clearly indicates that such a service is viable and interesting for drivers and citizens in general. Due to the late implementation it was not possible to collect data about willingness after implementation.

Indicator 2: Society → Acceptance → Public Awareness → News about the service

Table C2.5.2 lists the references for publications related with indicator 2 as a direct output of the measure. Due to implementation delays and late conclusion of the service most publications presented/described either the proposed service or prototype versions providing information via SMS and email for other categories of information such as Cinema and Cultural Agenda for Funchal (integration of real-time traffic information is still being concluded as of October 2012).

Table C2.5.2: *Dates and references for publications related with indicator 2*

No.	Publication / Event	Date
2	MIMOSA project brochure (portuguese, 2000 copies) + presentation local consortium (3000 copies)	June 2009
2	Expo Madeira 2010 and 2011 (2 annual events where leaflets presenting the measure have been distributed)	July 2010 and 2011
2	International Mobility event in Lisbon / IMTT	April 2010
2	Funchal Mobility week 2009, 2010, 2011 and 2012 (4 annual events). Leaflets presenting the measure have been distributed.	September 2009, 2010, 2011 and 2012
2	CIVITAS-MIMOSA Funchal Facebook page (to be published)	November 2012
2	Madeira Tecnopolo (MT) website news (to be published)	November 2012

Indicator 3: Society → Acceptance → Service Quality

A guided interview was carried out with three mobility experts during the period of 21st of September 2012 and the 10th of October 2012. Each interview took between 40 to 50 minutes. Participants were introduced to the proposed service. Topics discussed related to Mobility in Funchal, in particular in relation to traffic and to this service specifically (expected improvements in traffic flow; advantages for users, etc). The aim was to obtain the experts view on the effectiveness, relevance and impact of the service as implemented and proposed as a way to evaluate it qualitatively. The experts who participated in the interviews are Mr. Armando Ribeiro, Consultant and senior advisor for the Traffic Department of Municipality of Funchal; Mr. Faustino Gomes, Senior consultant at TIS, a Transport Consultancy company in Lisboa, which produced the Mobility Study for the Municipality of Funchal, presented in 2008, and Mr Elvio Encarnação, Mobility Manager at the Traffic Department of Municipality of Funchal.

Table C2.5.3 presents a summary of the views of each expert on each topic discussed as well as some comments regarding the interpretation, outstanding viewpoints and recommendations about each topic. Each element of the indicator evaluation is then presented in detail. The four topics discussed during the interviews were:

- i) Usefulness of the service;
- ii) Effectiveness of transport control;
- iii) Mobility problems in Funchal;
- iv) About this concrete service.

Table C2.5.3: Summary of the views of each expert on each topic resulting from the interview and summary /selection of main points

Topics and questions discussed in the interview	Expert I view	Expert II view	Expert III view	Summary/Selection of main points
i) Usefulness of the service				
How much importance / usefulness do you accord to such a	This service is of great importance: real-time information as a means to better decisions on	Provision of information to road users is always an important asset to the extent that people who receive it can always make more informed decisions and thereby improve the way they use the	It is innovative and useful, primarily for those who are constantly moving within the city such as Taxi drivers and	- great importance: real-time information as a means to better decisions; - people who receive it can always make more informed decisions;

service?	transport mode and itinerary. Not just for drivers.	road.	distribution companies. Police could use this service to disclose the location of the speed control and stop operations.	- innovative and useful, primarily for those who are constantly moving within the city such as Taxi drivers.
How do you perceive benefits to subscribers / drivers and on the other hand, for the system / network transport?	Clients having information can maximize efficiency of their decisions. PT operators have additional and effective means of reaching current and potential clients.	to have updated information on possible areas / jammed arteries, the driver can always change his route, destination or even the time at which this takes place. If he has not started his trip, the availability of such information permits even to change the schedule of the user to integrate it into his decision-making regarding his mobility. From the point of view of the transport system as a whole, the benefits will be diluted depending on the weight of the road system. Even supposing that people have a good knowledge of the public transport network at their disposal, the extension of this type of service to users of PT would require informing users about the alternative paths in order for its impact to be boosted.	Availability of real-time information is always an added value for those who must move as quickly as possible; on the other hand, the transport system can also benefit because the analysis of the information provided will help identify possible points that deserve particular attention on the part of those who manage the transport network.	- Clients having information can maximize efficiency of their decisions - availability of such information permits even to change the schedule of the user to integrate it into his decision-making regarding his mobility. - PT operators have additional and effective means of reaching current and potential clients - From the point of view of the transport system as a whole, the benefits will be diluted depending on the weight of the road system - analysis of the information provided will help identify possible points that deserve particular attention on the part of those who manage the transport network.
ii) Effectiveness of transport control				
Which increased efficiency can result for the transport network control resulting from the introduction and adoption of such a service?	The whole system benefits from this service because information flows and reaches users in time making the system more effective.	Allow drivers to change their route, destination or even the decision to make the trip, the adoption of a service of this type allows foreseen occasional improvements in traffic and a better distribution of vehicles in the road network (vehicles can diverge before reaching destination), which creates some reserve capacity to help ease the jam	It's an opportunity to provide better online and real-time management and simultaneously preventing more users avoiding interruptions or congested traffic	- information flows and reaches users in time , making the system more effective. - occasional improvements in traffic jam and a better distribution of vehicles in the road network - an opportunity to provide better online and real-time management and simultaneously preventing more users avoiding interruptions or congested traffic
Please indicate two main advantages that you foresee for users of this service? Why?	Providing real-time information to users permits to maximize usefulness: duration, costs	Decision making about the route to follow, improving the mobility of users globally. By avoiding traffic jams, it is possible to reduce fuel consumption, concomitantly reducing	Users of this service have an advantage in that they have more information than other drivers and simultaneously, the transport	- Providing real-time information to users permits to maximize usefulness: duration, costs and convenience. - avoiding traffic jams, it is possible to reduce

Measure title:

Mobility Services – SMS

City: **Funchal**

Project: **CIVITAS-MIMOSA**

Measure number: **8.1**

	and convenience.	emissions of greenhouse gases. By allowing users to accomplish missions faster, it generates social benefits associated with reduced loss of productive work time.	network can be better managed since these drivers do not enter into potential conflict zones.	fuel consumption, concomitantly reducing emissions of greenhouse gases - By allowing users to accomplish missions faster, it generates social benefits associated with reduced loss of productive work time.
And what are the main disadvantages and/or difficulties that you foresee for users of this service? Why?	Apart from communications costs there are no disadvantages for users. The main obstacle seems to be stakeholders providing real-time information (PT operators, road managers, Police, etc)	The speed of information transmission (since the occurrence, its transmission to a central control coordinating their dissemination to users) is crucial to the success of this service. May induce local jams on most obvious alternative routes (though certainly dependent on the level of adherence to service). Moreover, another problem may be related to the complexity of the messages that are transmitted; One should not forget that mobile phone use while driving is prohibited and that the reading of text messages while driving may itself be a reason for the occurrence of accidents. This concern should be taken into consideration in the development phase of this system.	The possibility of the service (the SMS messages) having to be paid for in the future is also considered as a barrier to reaching a large audience of users. The service should be free for all users at least during a testing period, even after the project closes.	- The main obstacle seems to have stakeholders providing real-time information (PT operators, road managers, Police, etc) - speed of information transmission (since the occurrence, its transmission to a central control coordinating their dissemination to users) is crucial to the success of this service - May induce local jam on most obvious alternative routes - One should not forget that mobile phone use while driving is prohibited and that the reading of text messages while driving may itself be a reason for the occurrence accidents
iii) Mobility Problems in Funchal				
In your opinion what is the main problem(s) of mobility in Funchal?	Dispersion and accessibility in the city and bus lines closing early in the evening hinders social inclusion in terms of mobility.	Excess of vehicles in circulation in some areas of Funchal, clearly above what the road network supports. Oversupply of private parking in the central area of the city, often in hard to reach places, which passes the image that "there is always place to park." The lack of reserved lanes for collective transportation that could compete "fairly" with private transport.	Excess of vehicles in the city centre and the constant movement of buses on "Avenida do Mar", the big, main front sea avenue	- Excess of vehicles in circulation in some areas of Funchal, clearly above what the road network supports. - Oversupply of private parking in the central area of the city - The lack of reserved lanes for collective transportation that could compete "fairly" with private transport.
Do you think this service may help to solve this	This service only brings indirect benefits to solving the problems	Only in part, to the extent that it allows users to change their ways / destinations not contributing to aggravate circulation in areas where it is already	It will be difficult, however, with a good adhesion of the drivers it can bring many benefits to	- Only in part, to the extent that allows users to change their ways / destinations not contributing to aggravate circulation in areas

problem(s)? If not, why? (which alternatives/improvements?) If yes, how?	stated above	difficult.	mobility in the city.	where it is already difficult. - with a good adhesion of the drivers it can bring many benefits to mobility in the city
What improvements can be implemented for mobility management in Funchal?	In my opinion the lack of a "metropolitan authority" to promote the integration of the management system.	Restrict the amount of vehicles in downtown area, either through an integrated parking management offering parking spaces away from the centre and served by public transport with improved performance (compared to current) through the implementation of reserved lanes	I think the most urgent is the construction of a bus parking central to remove from the city centre all intercity buses, on the other hand, it is necessary to create BUS corridors and fight irregular parking.	- the lack a "metropolitan authority" to promote the integration of the management system. - Restrict the amount of vehicles in downtown area and implementation of reserved lanes for PT / Buses
iv) About this concrete service				
On a scale of 1 (minimum) to 10 (maximum), how would you classify such a service, as it was presented?	8 in 10	7 in 10 (for its innovative approach)	7 in 10, but depending on adhesion to the service so that it reaches critical mass	Average 7.33 rating in 1 to 10
What you change or add to such a service? Why?	This service makes sense only if there's a "critical mass" in terms of information providers and users (sufficient and reliable information is critical for its success)	Eventually through the integration of information about the network of PT, especially providing alternative solutions in the event of disruption of normal functioning. Careful choice of complexity of the message that is sent and the type of letters that is used, to ensure that the reading of messages does not compromise the safety of drivers.	It has to be free to succeed.	- This service makes sense only if there's a "critical mass" in terms of information providers and users (sufficient and reliable information is critical for its success) - It has to be free to succeed.

Regarding the evaluation of the effectiveness, relevance and potential impact of the service, the results/findings indicate that from the viewpoints and answers expressed by the experts the general conclusion is that the service proposed is of great relevance and importance, that it will be effective and with a positive impact on users/clients and providers/managers, provided that quality of service is guaranteed (in terms of rapid, sufficient, real-time and reliable information) and that a critical mass is achieved in terms of information providers and users. It is considered that, as proposed, the service will benefit more the users than providers/managers. It is considered that if the service is free the chance of achieving the necessary critical mass of users is much higher. The main obstacle seems to be stakeholders providing real-time information (PT operators, road managers, Police, etc). One should not forget that mobile phone use while driving is prohibited and that the reading of text messages while driving may itself be a reason for the occurrence accidents. The proposed service receives an average evaluation of 7.33 rating in a range of 1 to 10.

Thoughts of experts on the **effectiveness of the service** indicate that it will permit an information flow that reaches users in time, resulting in occasional improvements in traffic jams and a better distribution of vehicles in the road network, thus making the system more effective. It's an opportunity to provide better online and real-time management and simultaneously preventing more users avoiding interruptions or congested traffic. By avoiding traffic jams it is possible to reduce fuel consumption, concomitantly reducing emissions of greenhouse gases. By allowing users to accomplish missions faster, it also generates social benefits associated with reduced loss of productive work time. It must be taken into account that speed of information transmission is crucial to the success of this service (since the occurrence, its transmission to a central control coordinating their dissemination to users).

Thoughts of experts on the **relevance and usefulness of the service** are that provision of real-time information to users permits to maximize usefulness in terms of duration, costs and convenience. Provision of real-time information as a mean to better decision is of great importance and people who receive it can always make more informed decisions. The service is perceived by experts as innovative and useful, primarily for those who are constantly moving within the city such as taxi drivers and distributors. Clients having information can maximize efficiency of their decisions and the availability of such information permits to change the schedule of the user to integrate it into his decision-making regarding his mobility. PT operators have additional and effective means of reaching current and potential clients. Experts also say that from the point of view of the transport system as a whole, the benefits will be diluted depending on the weight of the road system and that analysis of the information provided will help identify possible points that deserve particular attention on the part of those who manage the transport network.

Together with some impact aspects already referred to in regard to effectiveness and usefulness, thoughts of experts on the **potential impact of the service** point to a positive impact on users/clients and providers/managers, provided that quality of service is guaranteed (in terms of rapid, sufficient, real-time and reliable information) and that a critical mass is achieved in terms of information providers and users. Considering the existing excess of vehicles in circulation in some areas of Funchal (clearly above what the road network supports), allowing users to change their ways / destinations will contribute to loosen circulation in areas where it is already difficult. It is also considered that occasionally it may induce local jams on most obvious alternative routes.

Conclusions on experts evaluation of the proposed service undoubtedly indicate that their views are in line with the objectives of this measure, which consists in optimising traffic flow, reducing traffic jams and improving efficiency of urban transport systems by supporting and promoting drivers to take better and more efficient decisions before starting their journey by providing them with timely and useful traffic information.

C3 Achievement of quantifiable targets and objectives

Table C3.1 summarises targets and ratings for proposed indicators. Explanation of rating for indicator 1 (willingness of potential end-users/clients in using such a service) is presented in Section C2.5 and for indicator 3 (Mobility experts view on the effectiveness, relevance and potential impact of the service) is presented in Section C2.4. Explanation of rating for indicator 2 (News about the service) is presented in Table C3.2.

Table C3.1: Targets and ratings for indicators

No.	Target	Rating
1	Achieving at least 50% of positive answers on the survey/question regarding the willingness of potential end-users/clients in using such a service	***
2	Achieve at least 5 publications to increase citizens' awareness about the service	**
3	Achieve a satisfactory level of evaluation/feedback of mobility experts on the effectiveness, relevance and potential impact of the service	***
<p>NA = Not Assessed O = Not Achieved * = Substantially achieved (at least 50%) ** = Achieved in full *** = Exceeded</p>		

Justification of rating for indicator 1 result from the collected answers presented in Table C2.5.1, from where we conclude that 63% of potential clients/users of the service consider it as Useful or Very useful. This result clearly indicates that drivers and citizens in general are willing to use such a service. Rating for indicator 2 is justified by the list of publications presented in Table C2.5.2, which we consider acceptable but not good because the service could not yet include demonstration of usage of traffic related information. Rating for indicator 3 is justified by the views of mobility experts interviewed, for whom the general conclusion is that the service proposed is of great relevance and importance, that it will be effective and with a positive impact on users/clients and providers/managers. Following Table C2.5.3, which presents a summary of the views of each expert on each topic, there's an extensive and detailed analysis on each part of indicator 3 (Mobility experts view on the effectiveness, relevance and potential impact of the service).

Even if not yet fully operational (as of October 2012) in terms of providing traffic related information, because real-time traffic information is not yet being provided (although it is being integrated from three providers: Horários do Funchal, Via Litoral and Via-Expresso) the service and its supporting platform are technically/functionally operational and have been tested with other categories of information, such as Events and Cinema exhibitions. Taking into account both experts and end-users inputs, there's no doubt on the potential of such service with regards to its usefulness, relevance and likely positive impact on optimizing traffic flow and reducing traffic jam, with all the associated direct and indirect benefits, contributing to an effective improvement of efficiency of urban transport systems in Funchal. On a scale of 1 (minimum) to 10 (maximum), mobility experts interviewed classify it with a 7.33 average rating.

C4 Up-scaling of results

The SMS service was designed and implemented with scalability and transferability in mind:

- It will be able to support more types/categories of information as necessary;
- It will be able to support an increasing number of users;

This measure carried a pilot project for this type of service in Funchal / Madeira and is transferable to other cities.

C5 Appraisal of evaluation approach

Because of the delay/difficulty in obtaining real-time traffic information to be provided by the system in time for being measured and evaluated, some indicators initially defined could not be assessed and had to be dropped (as of October 2012 provision of real-time traffic information is still being integrated and not yet available for end-users). Indicators not assessed are listed in Table C1.2. The alternative evaluation approach taken for measure 8.1 consisted in measuring/counting two indicators and running a guided interview with mobility experts for a qualitative evaluation as the third indicator. Indicators assessed included:

1. Survey on the willingness of potential end-users/clients in having traffic information on their mobile phone. The survey made to the visitors of Expo-Madeira 2010, which resulted in 792 valid answers;
2. News about the service;
3. Guided interview with mobility experts for a qualitative evaluation on the effectiveness, relevance and impact of the service as implemented/proposed.

Considering the type of service developed and provided (SMS+email broadcast platform for traffic information) and the existing limitations for running the evaluation as initially planned, we consider that most suitable approach was the one carried out. In order for the proposed service to be considered a success, both the survey and interview questions should present a positive feedback/evaluation which demonstrated the viability of the service and ranks it with a low risk of failure once deployed. The outcome achieved give evidence of a high probably of acceptance, satisfaction level and success of the proposed service. A contrary result would mean that the risk of failure would be high. However due to late implementation, assessment of users experiences with this service was not possible. The questionnaire (see stage 6) was prepared and will be evaluated after MIMOSA.

C6 Summary of evaluation results

The key results are as follows:

- **Willingness of potential end-users/clients in using such a service** – Survey carried out during Expo-Madeira 2010 indicated that 63% of potential clients/users of the service consider it as Useful or Very useful. This result clearly indicates that such a service is viable and attractive.

- **News about the service** – “Mobility Services – SMS” service was presented 10 times on a paper or web publication. This is an acceptable result but not very good because the service couldn’t yet include demonstration of usage of traffic related information.
- **Mobility experts view on the effectiveness, relevance and potential impact of the service** – From the interviews with mobility experts it is clear that such a service is useful, relevant and with an expected positive impact on optimizing traffic flow and reducing traffic jams, together with other direct and indirect benefits, contributing to an effective improvement of efficiency of urban transport systems in Funchal (e.g. by allowing users to accomplish missions faster, generating social benefits associated with reduced loss of productive work time; PT operators have additional and effective means of reaching current and potential clients; analysis of the information provided will help identify possible points that deserve particular attention on the part of those who manage the transport network). Experts score it with an average 7.33 rating in 1 to 10. As described in Section C2.4 some factors definitely influence the success of the proposed service. Such factors include possible communication costs for end-users and the need of reaching a critical mass of information providers and subscribers.

C7 Future activities relating to the measure

Future activities include dissemination and final reporting activities. Dissemination is based mainly on online channels such as Facebook, partners’ websites and newsletter coverage.

- Deployment and Promotion of the service to the population / citizens, in particular to drivers;
- This service is suitable for integration with other alert services such as civil protection or weather forecasts. This is something to be tested in the future.

D Process Evaluation Findings

D.1 Deviations from the original plan

The deviations from the original plan comprised:

Deviation 1 title – Implementation/development delay – When compared to initial planning of the first version of DoW, there was a significant delay over the schedule of this measure:

- One of the reasons for this delay was related with the corresponding delay on the implementation of related measure FUN M8.3 (“Urban Mobility Control and Monitoring Centre), on which Measure FUN 8.1 was dependent;