



D5.13

MOBiNET on Pilot Site Spain

Work package: WP5
Version number: 2.0
Dissemination level: PU
Date: 08/06/2017



7th RTD Framework Programme
Directorate General for Communications Networks, Content & Technology
Cooperative Systems for energy efficient and sustainable mobility (FP7-ICT-2011-6.7)
Contract Type: Collaborative project
Grant agreement no.: 318485
Contract Type: Collaborative project

Version Control

Version history			
Version	Date	Main author	Summary of changes
1	26/04/2017	Emilio Pérez / Ángel Cruz (CTAG).	Main contribution on the document
2	06/06/17	Pablo Mejuto	Revision and contribution
	Name		Date
Prepared	Emilio Pérez / Ángel Cruz (CTAG).		31/05/2017
Reviewed	Yanying Li (ERTICO)		08/06/2017
Authorised	Maxime Flament (ERTICO)		08/06/2017
Circulation			
Recipient		Date of submission	
European Commission		08/06/2017	
Project partners		08/06/2017	

Authors

Emilio Pérez / Ángel Cruz (CTAG).

Table of contents

Table of Figures.....	4
Table of Tables	5
Abbreviations and definitions.....	6
Executive Summary.....	7
1. Introduction	8
1.1. Purpose, scope and target audience of this report	8
1.2. Structure of the document	8
1.3. Related MOBiNET documents.....	8
2. Test site.....	10
2.1. Description.....	10
2.2. Deployed services	12
3. Methodology.....	16
3.1. Test responsibilities across the Sub Projects	16
3.2. Methodology of the test site.....	17
4. Validation	18
4.1. Validation plans and guidelines	18
4.2. Results and recommendations after validation R4.0.....	18
5. Lessons learned.....	19
6. Conclusions and recommendations	20
Appendix I: Validation Test cases, scenarios and results.....	21
Validation Scenarios	21
Validation Test Cases	21
Publish B2B Service	21
MMTA app and service implementation.....	30
GLOSA app and service implementation.....	32
RTTI app and service implementation	33

Table of Figures

Figure 1 Location of test site Vigo.	10
Figure 2 Spanish Test Site overview.	11
Figure 3 Sharp Bend in Spanish Test site.	11
Figure 4 Slope % in Spanish Test site.	12
Figure 5 Tunnel in Spanish Test site.	12
Figure 6 MOBiNET development time processes and relationships, taken from (D51.1).	16
Figure 7 Technical vision of MOBiNET.	17

Table of Tables

Table 1: Related MOBiNET documents.....	8
Table 2 Services and MOBiNET Components	12

Abbreviations and definitions

Abbreviation	Definition
MMTA	Multi Modal Travel Assistant
CA	Communication Agent
CM	Communication Manager
HMI	Human Machine Interface
OBU	On-board Unit
RSU	Road Side Unit
LDM	Local Dynamic Map
SDK	Software Development Kit
GLOSA	Green Light Optimal Speed Advice.
VAP	Validation and Assessment Plan
RTTI	Real Time Traffic Information

TERMS	DEFINITION
Component	A software component in the MOBiNET platform. For instance, the service directory or the dashboard.
GLOSA	Green Light Optimal Speed Advice. One of the services selected for Release 1.
MMTA	Multi Modal Travel Assistant. One of the services selected for Release 1.
Service	Each of the existing or developed mobility solutions adapted and combined into the MOBiNET platform. The services in Release 1 include: GLOSA, MMTA or UBI
Use case	A use case is a list of steps, typically defining interactions between a role (known in UML as an “actor”) and a system, to achieve a goal. The actor can be a human or an external system.
Validation	The assurance that a product, service, or system meets the needs of the customer and other identified stakeholders. It often involves acceptance and suitability with external customers. Contrast with verification.
Verification	The evaluation of whether or not a product, service, or system complies with a regulation, requirement, specification, or imposed condition. It is often an internal process. Contrast with validation.

Executive Summary

This is the MOBiNET Validation and status report for the Pilot site Spain. It will report on the plans and results for validation for release 4.0 of MOBiNET platform. This document will be subject to change during and after validation activities. This is the fourth report dedicated to the MOBiNET, this is the release 4.0 validation and status report. The work and results for Release 1 , 2 y 3 are excluded in this version.

MOBiNET has been improved during release 4.0 compared With the previous releases. In general documentation is still an issue. This already starts with the information provided in the requirements descriptions. Sometimes there are to limited information available and the definitions lack acceptance criteria and some basic test descriptions needed for verification and validation. But also this applies to the platform components and services. Especially for web services there is good documentation available now, but it is still difficult to find it and for some components it is even still missing.

In this release some requirements are not passed, but no critical blocking issues are identified in this release.

1. Introduction

1.1. Purpose, scope and target audience of this report

The purpose of this document is to define the validation framework as performed at the test site Vigo, leader test site in Pilot Spain. For validation the Vigo test site will act like the other primary test sites, i.e. deploy the use cases in the MOBiNET platform.

The audience of this report includes:

- The use case developers (SP2) to plan if and how their use case can be implemented on the test site Vigo
- The component developers (SP3) and platform host (SP4) to judge whether their test plans are complementary to the tests as described in this document.

1.2. Structure of the document

This document is structured in seven main chapters and two more for bibliography and one appendix. Chapter 2 describes the characteristics of the Pilot Site Spain. Chapter 3 presents the general methodology of the validation process carried out in this Pilot Site. Chapter 4 explains the validation plans and guidelines followed for the validation phase and also the results and recommendations of the validation of release 4.0 of MOBiNET. Chapter 5 shows the lessons learned during the validation of the platform the next three chapters close the document with conclusions of the validation, bibliography and an appendix with the test cases and scenarios description for R4.0.

1.3. Related MOBiNET documents

This section contains internal documents produced within the MOBiNET project. All these documents can be downloaded from MOBiNET's collaboration portal on EMDESK: <http://www.emdesk.com/>. All partners in the consortium have access to the portal.

Table 1: Related MOBiNET documents.

Finalised MOBiNET deliverables		
Reference	Document	Version and date
MOBiNET DoW	DOW MOBiNET (318485) Amendment3 2016-07-15	15/07/2016
D21.1	2.1 Use case scenarios selection and preliminary requirements definition	v3.6 08/10/2013
Future MOBiNET deliverables		
Reference	Document	
D21.2.1	2.2a Final MOBiNET requirements (release 1)	
D21.2.2	2.2b Final MOBiNET requirements (release 2)	

D22.3.1	2.3a Requirements and selection of MOBiNET innovative services (release 1)
D31.2	3.2 Initial concept and architecture
D51.1	5.1 Validation and assessment plan (release 1)
D52.2	5.2b Validation and assessment plan (release 2)
D52.3	5.3 Guidelines and trial plans for pilot validation
IR56.191	Pilot Helmond verification and status report (release1)
IR56.11	Pilot Helmond verification and status report (release2)
D52.6.1	Platform validation results (release 1)
D52.7.1	Integrated analysis of platform & pilots validation (release1) (impact assessment and business impact assessment)
D63.6.1	6.6a Non-technical requirements (release 1)
D63.6.2	6.6b Non-technical requirements (release 2)
D52.6.2	Platform validation results (release 3.1)
D52.7.2	Platform validation results (release 4.0)

2. Test site

2.1. Description

Spanish pilot site is located in the surroundings of Vigo city, in the north-western part of Spain. It is about 60 km long and has motorway and highway roads with city entrances. The test site is operated by CTAG and DGT (Spanish Ministry of Traffic). Some urban test tracks are available at CTAG facilities.

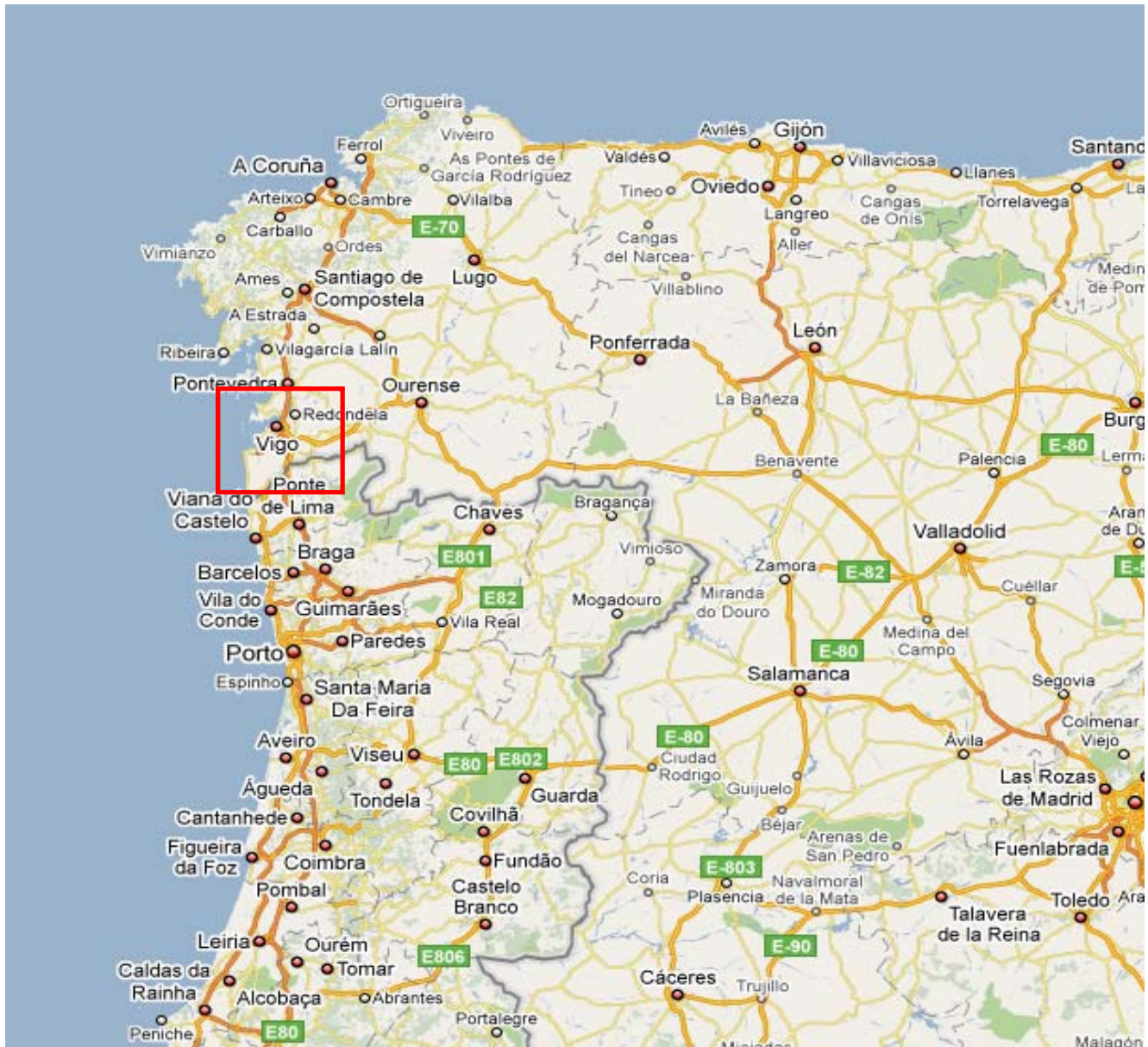


Figure 1 Location of test site Vigo.

The road network of Spain pilot site is illustrated in Figure 1. It comprehends motorway and highway roads with at least two lanes per direction (some highway parts are including three lanes per direction). The general maximum speed in these roads is 120 km/h, but specific limits are indicated in certain places due to the special characteristics of particular sections of the road (i.e., sharp curves). It also comprehends city entrances.

The general characteristics of the area could be described by the following features:

- City Entrance
- Sharp curves
- Slopes
- Roadwork (usually)
- Inclusion of tunnel (over 1 km length)
- Variable and frequently adverse weather conditions

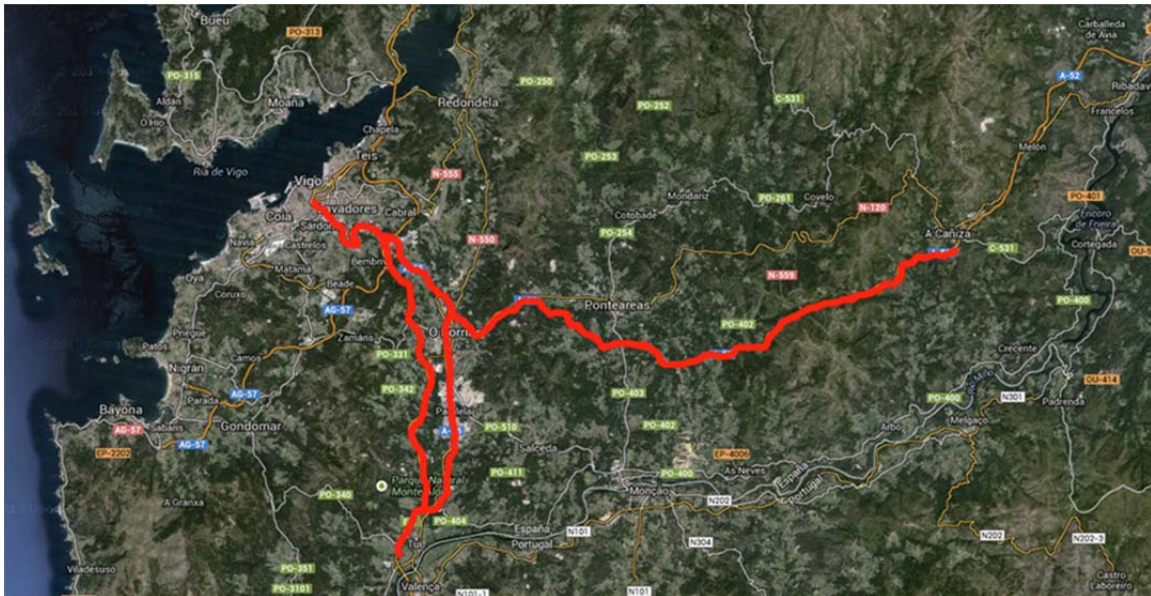


Figure 2 Spanish Test Site overview.



Figure 3 Sharp Bend in Spanish Test site.



Figure 4 Slope % in Spanish Test site.



Figure 5 Tunnel in Spanish Test site

2.2. Deployed services

In the planned work, pilot Spain, including Vigo, Barcelona and San Sebastian, will focus on the following mobility services for R4.0:

Table 2 Services and MOBiNET Components

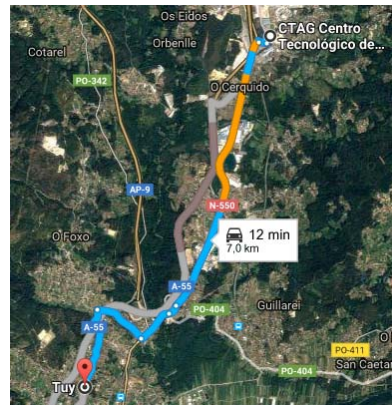
Components / Services		SD	IdM	Billing	Mobi Agent	CM/CA	TSP M	DQA	SDK	Dashboard	Privacy Framework
GLOSA	R2.0										
	R2.1	✓	✓		✓				✓	✓	

	R3.0	✓	✓		✓	✓			✓	✓	
	R3.1	✓	✓		✓	✓			✓	✓	
	R4.0	✓	✓	✓	✓	✓		✓	✓	✓	
RTTI	R2.0										
	R2.1										
	R3.0	✓	✓		✓	✓			✓	✓	
	R3.1	✓	✓		✓	✓			✓	✓	
	R4.0	✓	✓	✓	✓	✓		✓	✓	✓	
MMTA	R2.0										
	R2.1	✓	✓		✓				✓	✓	
	R3.0	✓	✓		✓	✓			✓	✓	
	R3.1	✓	✓		✓	✓			✓	✓	
	R4.0										

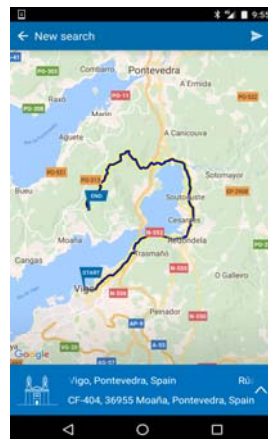
- Below a description of the implemented services is included:
 - GLOSA: (Green Light Optimal Speed Advice). The goal is to lower CO2 emissions and to avoid unnecessary stopping in intersection approach scenarios by giving speed advices to drivers based on current and future traffic light signal phase timings.
 - The intersection used for GLOSA is at the beginning of the Avenida de Madrid entrance of Vigo, according to the attached map. Although there would be availability of GLOSA connection in many points within the urban corridor of Vigo.



- RTTI: (Real Time Traffic Information). The objective is to use the service for cooperation on traffic incidents, as detected and managed by road operators and traffic and safety events as detected by cooperative vehicles and communicated in DENMs. This service is available all around Spain receiving data from the DGT panels. In Vigo it covers more than 150 km and provides with events such as road works and accidents information.



- MMTA: (Multi Modal travel Assistant). Consists on an innovative approach aimed to simplify content provision chain and to guarantee support to traveler by offering real-time trip calculation and mobility information. This service was validated in this test site until release 3.0



- B2BTS:
 - In the Spanish Pilot the B2BTS Use Case was implemented in order to evaluate different datasets.
 - The expectation was to have a useful tool that can provide quantitative indicators about the quality of the raw data that will be used to create advanced traffic services.
 - The evaluation was carried out using the Data Quality Assessment Widget available in the MOBiNET dashboard to evaluate Floating Car Data (FCD) dataset and also the DQA Service available in the Service Directory
 - The components used were:
 - DQA Widget
 - Service Directory
 - Identity Manager: Authorization
 - Outcome:
 - The DQA Widget is highly useful.
 - It is possible to evaluate FCD dataset easily and quickly.
 - The analysis provides different measures about the quality of the dataset uploaded
 - Some minor issues could be improved:
 - Clear explanation on the format expected by the widget
 - Additional information about the meaning of the different evaluation measures
 - Error due to unexpected characters in the file name

3. Methodology

3.1. Test responsibilities across the Sub Projects

Testing is often divided in verification and validation

- Verification** determines if the MOBiNET platform and services are consistent and perform the selected functions in the correct manner. Using a bottom-up approach verification ensures whether the requirements of the functional specifications at the higher levels are fulfilled. In general, verification addresses the requirements of what MOBiNET needs to consider for the design of its services and platform. For that, they need to be verified before deploying the services. This process has not been carried out in the Pilot Spain.
- Validation** analyses if the right platform and innovative services have been built, i.e. whether MOBiNET’s platform and services comply with the objectives and perform the functions for which they were intended for, by assessing hypotheses and success criteria statements. Validation checks, using a top-down approach, the performance and effectiveness based on selected performance indicators. Validation addresses the effects of the innovative services: meaning how effectively the services respond to identified user (stakeholders) needs. As a consequence, the validation categories are always addressing the effects of the services in, for instance, social or environmental aspects.

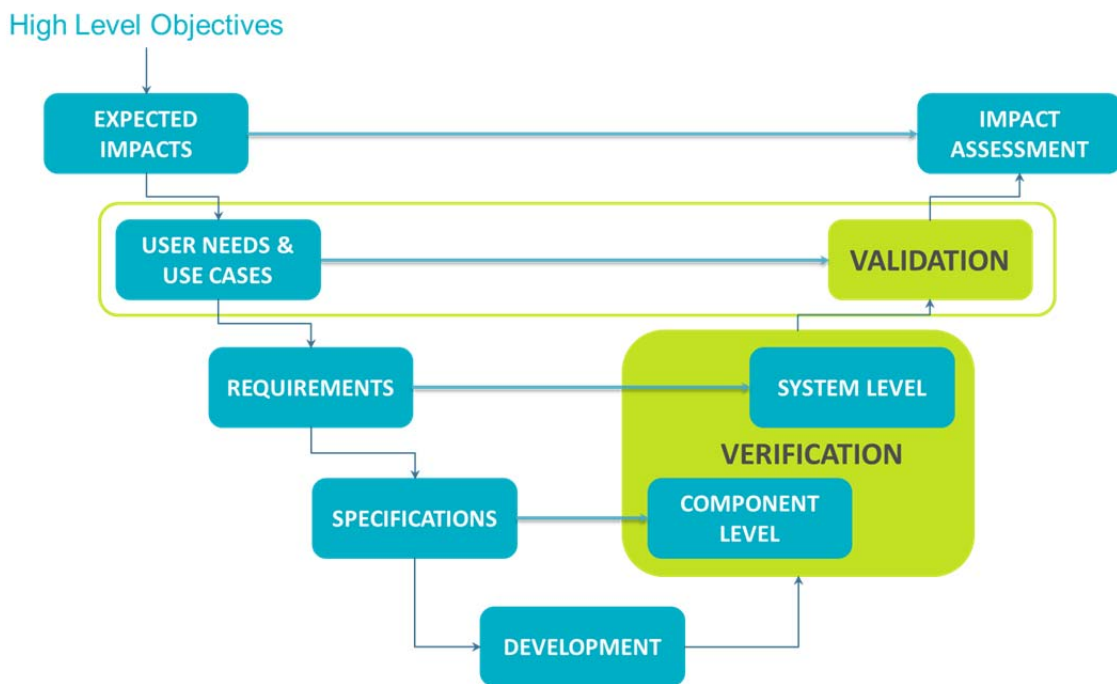


Figure 6 MOBiNET development time processes and relationships, taken from (D51.1).

According to the overall pilot planning, the following time lines were planned:

- Implementation and validation release 4.0 (April - May 2017)

- Delivery of final release 4.0 (April - May 2017)

3.2. Methodology of the test site

According to the deliverable D5.1.1 Validation and Assessment Guidelines, the validation approach that was carried out in Spain includes three main stages:

- Definition: During this phase, according to the selected services to be deployed, the different success criteria, validation scenarios, will be described and managed. Also the number of participants to be recruited, the type of participants, as well as the preparation of the validation environment and mechanisms for data acquisition, will take place in this stage.
- Operation: This stage includes the baseline and the functional operation to be taken in order to validate the selected services with the use of the recruited participants. In this way, different tests in the identified validation scenarios will be carried out, and data from the tests will be logged for further analysis. This analysis will be used to validate the different hypotheses previously defined.
- Data analyses: The last stage includes the analysis of the data collected and the generation of results and conclusions.

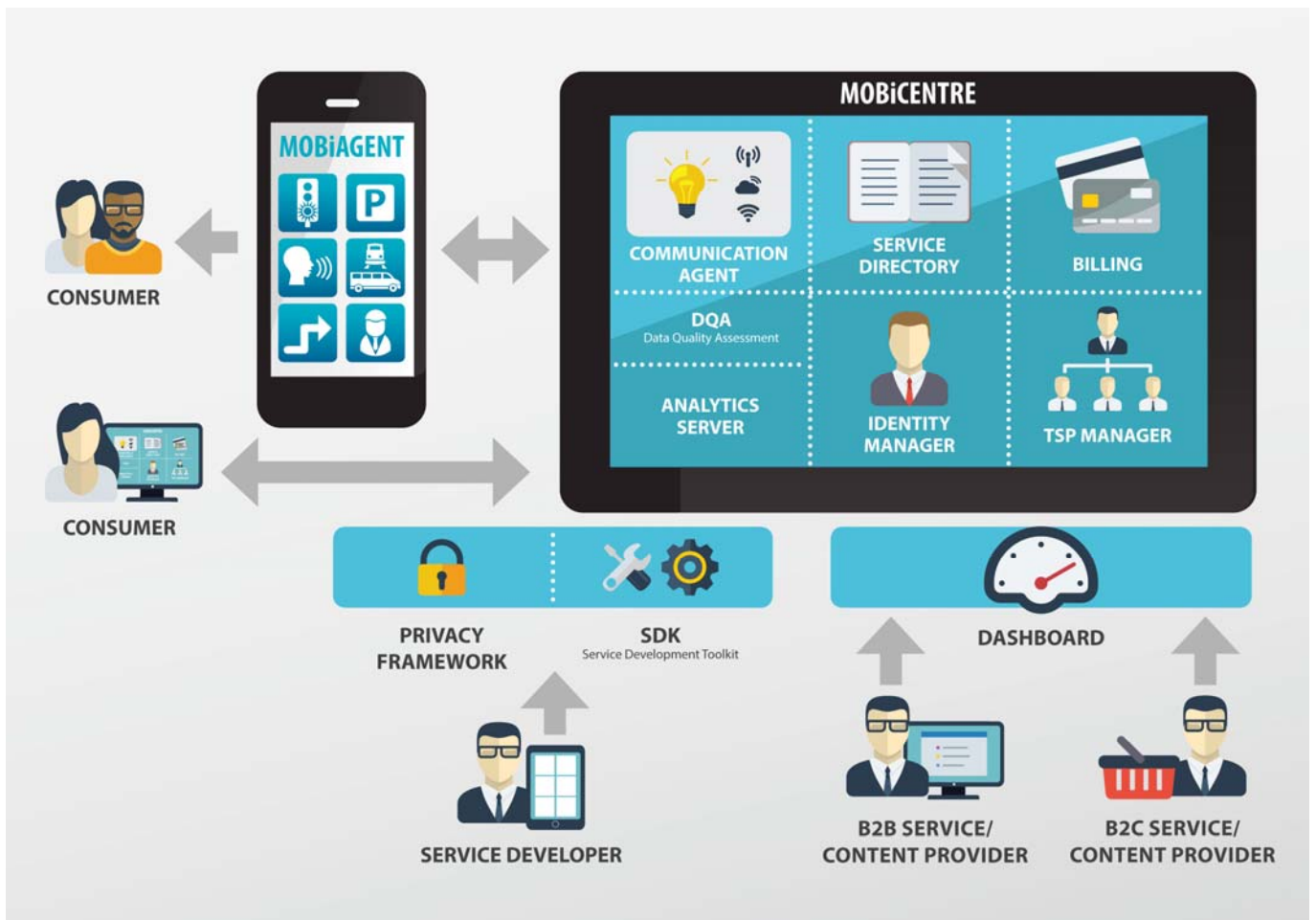


Figure 7 Technical vision of MOBiNET.

4. Validation

4.1. Validation plans and guidelines

The methodology towards validation is explained in Chapter 3. The *D51.2 Validation and impact assessment plan* is to provide specific instructions on what functionalities and requirements need to be validated and what information and data should be gathered at the pilot sites. The validation and impact assessment plan will include information on common platform functionalities that should be validated at all the primary pilot sites as well as requirements specific to use cases that are implemented.

In order to adapt the validation and impact assessment plan for specific pilot sites, *D52.3 Guidelines and trial plans for pilot validation* provides instructions and examples on how to identify and utilise the right information (e.g. what requirements should be validated and what data should be gathered). This document is instructional in nature and includes examples of how the pilot sites should produce validation plans specific for them. It has come available at the beginning of June 2014.

4.2. Results and recommendations after validation R4.0

Validation scenarios for the Vigo site, attention were focused on the validation of the components of the Mobinet platform (Billing, SD, IdM, MOBiAGENT, CM / CA, DQA, SDK and Dashboard) and services GLOSA and RTTI in Release 4.0. The tester was involved with end user with medium knowledge of IT technology and also with a medium knowledge of the MOBiNET platform. Services used were GLOSA App, RTTI App, 3G communication. They have been tested in a real environment and desk with satisfactory result. Questionnaires were also covered and the result was good with small comments.

Validation of requirements at the pilot site includes:

- MP-845 (R3.1): Provide a widget for the Dashboard
- MP-969 (R4.0): DQA widget should check format validity of uploaded data before pressing Analysis button

For evaluation of traffic raw data:

- The user role is a traffic service provider that wants to evaluate new raw traffic data providers to be integrated
- The components tested are:
 - Service directory
 - Dashboard: DQA Widget
 - Identity Manager: Authorization
- Outcome:
 - DQA Widget offers a fast and useful evaluation of FCD datasets
 - In case of wrong format a link to the data format specifications would be highly recommendable
 - Existing error when the filename contains a space → the problem was solved

5. Lessons learned

During this release, the deployment of the services was done on real environment. Integration phase on real scenarios is complicated and needs the support of the different parts involved in the process. An iteration cycle was needed for to check that everything was working according the specifications.

6. Conclusions and recommendations

The pilot site has deployed GLOSA and RTTI using the MOBiNET platform and perform filtered app search by area / location including functions such as:

- Anticipation to the state of the traffic lights and anticipated knowledge of events on the road for RTTI. Apps and information available in a centralize platform.
- Availability for GLOSA the information while driving.

During the test, possible competition with other free applications and as development needs implement new forms of transport has been foreseen. The data obtained as result of the questionnaires shows different points of view of the platform, the B2B side and the App users side. In both cases the tester was a person with medium knowledge with information technology and also with a medium knowledge of the MOBiNET platform and the possibilities and advantages of the usage. As result, the profile is adequate to test a non-habitual user, and with this information the platform accessibility can be used to improve the user experience.

Analysing the results related on the B2B side, in general user experience was evaluated as positive. It was observed that was difficult to find and manage some information. Anyway as positive aspect the interface was very intuitive and the app provided information about how to use it. It was pointed out a benefit of the MOBiNET platform was to have information which could be useful when using services.

Based on the results, the following recommendations are drawn:

- Taking into account the result obtained during the Release 4.0 some recommendation must be taking into account. First of all, the users of the App side must receive a brief introduction in the MOBiNET platform (e.g. mini training explaining how it works).
- It would be interesting for the user, to have videos by way of example about the services and applications available in MOBiAGENT / MOBiNET account.

Appendix I: Validation Test cases, scenarios and results

Validation Scenarios

Validation scenarios (tables)

Validation Test Cases

The tests at will mainly be use case specific validation: the GLOSA, MMTA and RTTI services, based on the services which are being deployed at the Pilot test site Spain. Checking whether the available platform components fulfil the needs of these services. Main validation roles are as an end-user using the available services and as a service provider deploying a service.

Publish B2B Service

Validation Scenario ID	VS_SPA_SDM_SP_01-R3		
Name	Service registration and discovery on service directory		
Requirement Category	User account management Service discovery and management, General platform features		
Point of View (Stakeholder role)	Service provider and Service developer		
Description	<p>Publish a service in Service Directory, manage services in Service Directory and use search functionality offered by Dashboard. Following cases are evaluated within this scenario (in parts that are applicable for each case):</p> <ul style="list-style-type: none"> • PRT service • Multimodal engine service • RTTI service 		
Objective	<p>Validate the service publishing tools provided by MOBiNET in the addition of B2B services. This scenario evaluates the usability and intuitiveness of the service publishing tools as well as the coverage of the service description and metadata options available for the service description. In addition, this scenario evaluates the power and usability of the service discovery functionality offered by dashboard by including searching of the just published service in various ways.</p>		
Validation Pilot site	SPA		
Requirements validated			Requirement
	ID	R	Name
	MP-54	1	Login to Dashboard
	MP-57	1	Supported browsers

MP-83	1	Search Service Directory
MP-84	1	Publish a Service to Service Directory
MP-85	1	Associate Metadata With a Published Service
MP-86	1	Define Service Technical Details
MP-87	1	Define Cost for Service Usage
MP-89	1	Define Service Coverage Area
MP-95	1	Extend Service Metadata Description for a Service
MP-96	1	Remove Service From Service Directory
MP-97	1	Activate/Deactivate service
MP-581	2	Service description should include owner and who registers this service
MP-582	2	Search function
MP-586	2	Associate USDL description with service description
MP-588	2	Extended widget functionalities
MP-590	2	Search for services based on output data type/format
MP-595	2	Make widgets browser independent
MP-597	2	Language to be included in Service Description
MP-671	2	Customize Dashboard Login Page for MOBiNET
MP-706	2.1	Provide inline and context sensitive help
MP-710	2.1	Https for Dashboard
MP-716	2.1	Add field "name" (searchable) to service description in addition to ID
MP-717	2.1	It should be possible to define a category based on pre-defined values
MP-718	3.0	Add licences agreement description to service description
MP-720	2.1	Possibility to list all existing apps/services
MP-721	2.1	Improvements searching for services (state of the art)
MP-722	2.1	Display geographical area on map when showing details of Service Description
MP-734	2.1	Possibility to list all existing services
MP-747	2	Editor: UI improvements: icons, tooltips
MP-748	2	Editor: Undo/redo operations

MP-749	2	Editor: adapt to the new (updated) service description format (work on-going)
MP-750	2.1	Editor: adapt to the new (updated) service description format (finalize)
MP-752	3.0	Editor: Online-Help
MP-753	3.0	Editor: Mandatory Fields
MP-51	3.0	Service Usage Statistics
MP-793	3.0	Ensure that a developer only can manage/modify service descriptions from his own organization.
MP-627	3.0	Widgets to display the analytics
MP-626	2.0	Dashboard Analytics Server
MP-712	2.1	Improve Analytics Server
MP-613	2.0	Management of User Identities in MOBiNET IdP
MP-56	2.0	Manage Service Providers
MP-710	3.0	Https for Dashboard
MP-792	3.0	Improve widget manager: Better management capabilities for the widgets
MP-743	3.0	Overhaul Service Description Editor (Standalone Version)
MP-817	3.0	Apply Style Guide to Dashboard and Widgets
MP-818	3.0	Apply Style Guide to IDM UI
MP-814	3.0	Update DataCatalog Widget
MP-816	3.0	Update SD Widgets
MP-754	3.0	Editor: Editor as separate eclipse executable (Windows 32-bit)
MP-756	3.0	Editor: update documentation for Editor
MP-799	3.1	Encoding of Service description file
MP-820	3.1	Search in a geographical area without a service-type
MP-821	3.1	User authentication and authorization before deleting content in the Data Format Catalog
MP-824	3.1	Make searching in tags case independent
MP-853	3.1	Apply the Roles & Rights model
MP-860	3.1	Searching for one of the categories/tags should return service description

	MP-875	3.1	Check whether Mandatory fields of the Service Description are filled upon saving.
	MP-880	4.0	Provide "back-wards" communication interface
	MP-886	4.0	Identify and implement steps required to provide basic authentication protection
	MP-916	4.0	Widget for "Contact"
	MP-929	4.0	A single User should not access to the IDM Authorization site from the Dashboard menu
	MP-934	4.0	Billing menu should hide unavailable menu entries.
	MP-935	4.0	Generating payment should not result in returning to homepage
	MP-936	4.0	Add an event type code description
	MP-937	4.0	Service Provider pays a fee one-off to MOBiNET for publishing in Service Directory
	MP-938	4.0	Improve reliability of Billing processing Widget
	MP-939	4.0	Provide reporting for MOBiNET Administrator
	MP-940	4.0	Provide real-time logging for Service Provider IDs
	MP-941	4.0	Provide a "purchase" button within the Service Directory
	MP-942	4.0	Improve stability of CA Component
	MP-943	4.0	Hide unavailable functions from Dashboard menu
	MP-944	4.0	Improve user-friendliness of Geographical area searching
	MP-945	4.0	Improve user-friendliness of Dashboard menu choices
	MP-948	4.0	Dashboard should support layout scaling
	MP-949	4.0	Service Directory map view should open in Europe
	MP-950	4.0	Allow users to reset their password

	MP-952	4.0	Improve user-friendliness of navigating between Identity Manager and Dashboard
	MP-958	4.0	Add functionality to SDK specify language within Service Description
	MP-959	4.0	Make the Service Description map coordinates functionality more robust
	MP-969	4.0	DQA widget should check format validity of uploaded data before pressing Analysis button
	MP-970	4.0	Improve stability and reliability of Service Directory component
	MP-973	4.0	Add and display contact detail fields of Service Description in Service Directory
Service(s) used in validation	Spain MMTA multimodal engine, RTTI, B2B, PRT		
Process (validation steps)	<ol style="list-style-type: none"> 1) MP-613: Management of User Identities in MOBiNET IdP <ul style="list-style-type: none"> o Create user ID with PartyAdmin role (as Administrator) o Includes requirement: <ul style="list-style-type: none"> -MP-56: Manage Service Providers -MP-818: Apply Style Guide to IDM UI -MP-950: Allow users to reset their password 2) MP-54: Login to Dashboard <ul style="list-style-type: none"> o Login with ID having PartyAdmin role to Dashboard 3) MP-613: Management of User Identities in MOBiNET IdP <ul style="list-style-type: none"> o Create necessary IDs with appropriate roles and permissions for party in question (as PartyAdmin) o MP-853: Apply the Roles & Rights model 4) MP-54: Login to Dashboard <ul style="list-style-type: none"> • Login <ul style="list-style-type: none"> - as Service Provider / Developer - as user that provides service descriptions for services • Include validation of the requirements below: <ul style="list-style-type: none"> - MP-57: Supported browsers - MP-671: Customize Dashboard Login Page for MOBiNET - MP-710: Https for Dashboard - MP-817: Apply Style Guide to Dashboard and widgets - MP-886: Provide back/wards communication interface. - MP-929: A single User should not access to the IDM Authorization site from the Dashboard menu - MP-943: Hide unavailable functions from Dashboard menu - MP-945: Improve user-friendliness of Dashboard menu choices - MP- 948: Dashboard should support layout scaling - MP-952: Improve user-friendliness of navigating between Identity Manager and Dashboard - MP-916: Widget for "Contact" - 5) MP-799: Publish a Service to Service Directory 		

- MP-799: Encoding of Service Description file
 - MP-959: Make the Service Description map coordinates functionality more robust
 - MP-970: Improve stability and reliability of Service Directory component
-
- 6) MP-84: Publish a Service to Service Directory
 - Create and publish the service in Service Directory with minimum service description to test deletion of the service (with mandatory information only)
 - MP-753: Editor: Mandatory Fields
 - MP-875: Check whether Mandatory fields of the Service Description are filled upon saving
- 7) MP-83: Search Service Directory
 - Search for the service just published in step 2 above for removal
 - MP-720: list all services
 - MP-721: Improvements searching for services (state of the art)
 - MP-722: Display geographical area on map when showing details of Service Description
 - MP-717: It should be possible to define a category based on pre-defined values
 - MP-734: Possibility to list all existing services
 - MP-706: Provide inline and context sensitive help
 - MP-880; Provide back/wards communication interface
 - MP- 944: Improve user-friendliness of Geographical area searching
 - MP-942: Improve stability of CA Component
- 8) MP-96: Remove Service From Service Directory
- 9) MP-821: Remove Data From Data Format Catalog
- 10) MP-84: Publish a Service to Service Directory
 - Re-describe the service with full description using Dashboard and Service Description Editor
 - Include validation of the functionality related to the requirements below:
 - MP-58: Service description should include owner and who registers this service
 - MP-85: Associate Metadata With a Published Service
 - MP-86: Define Service Technical Details
 - MP-87: Define Cost for Service Usage
 - MP-89: Define Service Coverage Area
 - MP-95: Extend Service Metadata Description for a Service
 - MP-586: Associate USDL description with service description
 - MP-588: Extended widget functionalities
 - MP-792: Improve widget manager: Better management capabilities for the widgets
 - MP-814: Update DataCatalog Widget
 - MP-816: Update SD widgets

- MP-595: Make widgets browser independent
- MP-631: Extended Tutorials including a MOBiNET user manual of how to use components for service developers
- MP-716: Add field "name" (searchable) to service description in addition to ID
- MP-718: Add licences agreement description to service description
- MP-743: Overhaul Service Description Editor (Standalone Version)
- MP-754: Editor: Editor as separate eclipse executable (Windows 32-bit)
- MP-756: Editor: Update documentation for Editor
- MP-747: Editor: UI improvements: icons, tooltips
- MP-748: Editor: Undo/redo operations
- MP-749: Editor: adapt to the new (updated) service description format (work on-going)
- MP-750: Editor: adapt to the new (updated) service description format (finalize)
- MP-799: Encoding of Service description file
- MP-949: Service Directory map view should open in Europe
- MP-958: Add functionality to SDK specify language within Service Description
- MP-973: Add and display contact detail fields of Service Description in Service Directory

- Publish the service in Service Directory (service registration)

11) MP-97: Activate/Deactivate service

- MP-793: Ensure that a developer only can manage/modify service descriptions from his own organization.

12) MP-83: Search Service Directory

- Search published service both after activation of the service and after de-activation of the service
- Search with all possible ways to test richness of the search functionality
- Include validation of the requirements below:
 - MP-582: Search function
 - MP-590: Search for services based on output data type/format
 - MP-820: Search in a geographical area without a service-type
 - MP-824: Make searching in tags case independent
 - MP-860: Searching for one of the categories/tags should return service description

13) MP-51: Service Usage Statistics

MP-627: Widgets to display the analytics

14) MP-626: Dashboard Analytics Server

MP-712: Improve Analytics Server

MP-969: DQA widget should check format validity of uploaded data before pressing Analysis button.

	<p>15) MP- 87: Define Cost for Service Usage</p> <ul style="list-style-type: none"> - MP-934: Billing menu should hide unavailable menu entries. - MP-935: Generating payment should not result in returning to homepage - MP-936: Add an event type code description - MP-937: Service Provider pays a fee one-off to MOBiNET for publishing in Service Directory - MP-938: Improve reliability of Billing processing Widget - MP-939: Provide reporting for MOBiNET Administrator - MP-940: Provide real-time logging for Service Provider IDs -MP-941: Provide a "purchase" button within the Service Directory
--	--

App discovery and use

Validation Scenario ID	VS_SPA_ADU_EU_05-R3														
Name	App discovery and use														
Requirement Category	App discovery and use														
Point of View (Stakeholder role)	End user														
Description	This scenario evaluates the realization of end user interface to MOBiNET as well as deployment and use of MOBiNET applications in the MOBiAGENT context.														
Objective	<p>The evaluation concentrates on the following end user topics:</p> <ul style="list-style-type: none"> • installation and configuring MOBiAGENT environment in the user terminal, • creation of personalised MOBiNET end user account, • app discovery • app deployment • app management and usage in MOBiAGENT environment <p>The topics above are tested in different terminal environments in order to test functioning and usability in various sizes of screens and operating system versions. In addition, app discovery using web interface is evaluated in different browser environments.</p>														
Validation Pilot site	SPA														
Requirements validated	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2"></th> <th style="background-color: #00A0C0; color: white;">Requirement</th> </tr> <tr> <th style="background-color: #00A0C0; color: white;">ID</th> <th style="background-color: #00A0C0; color: white;">R</th> <th style="background-color: #00A0C0; color: white;">Name</th> </tr> </thead> <tbody> <tr> <td>MP-26</td> <td>1</td> <td>Android Operating System</td> </tr> <tr> <td>MP-29</td> <td>1</td> <td>Mobile Device Screen Size</td> </tr> </tbody> </table>					Requirement	ID	R	Name	MP-26	1	Android Operating System	MP-29	1	Mobile Device Screen Size
		Requirement													
ID	R	Name													
MP-26	1	Android Operating System													
MP-29	1	Mobile Device Screen Size													

	MP-41	1	App Store UI
	MP-43	1	Search App Store
	MP-79	1	Create New MOBiNET account
	MP-420	2	Install MOBiAGENT from App Store
	MP-783	3.0	Make MOBiAGENT compatible with Android version 5.x
	MP-596	2	For all type of end user services
	MP-605	2	Update AppDirectory UI
	MP-610	2	Install MOBiAGENT extensions
	MP-620	2	Add Google as external IDP to Mobinet
	MP-647	2	Service Discovery Widget
	MP-652	2	MOBiAGENT end-user UI integration
	MP-790	3.0	Integrate Webviews into UI of MOBiAGENT (e.g. AppDirectory UI)
	MP-791	3.0	Change start screen of MOBiAGENT to MOBiNET Login-Page
	MP-862	3.1	Be able to rotate the screen while using Service Directory UI
MP-864	3.1	Use native Android "back-button" within Service Directory UI	
Service(s) used in validation	MMTA, GLOSA, RTTI and other if available		
Process (validation steps)	<ol style="list-style-type: none"> 1) MP-420: Install MOBiAGENT from app store <ul style="list-style-type: none"> • download and install MOBiAGENT and required extensions via Google Play Beta program: https://play.google.com/apps/testing/org.mobinet.mobiagent • MP-783: Make MOBiAGENT compatible with Android version 5.x • Optionally includes requirement: <ul style="list-style-type: none"> - MP-610: Install MOBiAGENT extensions 2) MP-79: Create New MOBiNET Account <ul style="list-style-type: none"> • MP-791: Change start screen of MOBiAGENT to MOBiNET Login-Page • Create your personal MOBiNET end user account and log into MOBiNET as end user • Includes requirement: <ul style="list-style-type: none"> - MP-620: Add Google as external IDP to Mobinet (as background information) 3) MP-41: App Store UI (general view) <ul style="list-style-type: none"> • Experiment end user interface offered by MOBiAGENT using different end user terminal environments. • MP-790: Integrate Webviews into UI of MOBiAGENT (e.g. AppDirectory UI) • includes requirements: <ul style="list-style-type: none"> - MP-26: Android Operating System - MP-29: Mobile Screen Size 		

	<ul style="list-style-type: none"> - MP-652: MOBiAGENT end-user UI integration - MP-862: Be able to rotate the screen while using Service Directory UI - MP-864: Use native Android “back-button” within Service Directory UI <p>4) MP-43: Search Apps Store</p> <ul style="list-style-type: none"> • By using MOBiAGENT end user UI, search applications in various ways in order to find out what apps are available • Specifically search MMTA, GLOSA and RTTI apps • Check how different kinds of end user apps and services are found and how their service descriptions are presented • In parallel, test service discovery realization for browser environment and compare the functioning and results in the end user app and service discovery • includes requirements: <ul style="list-style-type: none"> - MP-596: For all type of end user services - MP-605: Update AppDirectory UI - MP-647: Service Discovery Widget <p>5) MP-41: App Store UI (app deployment)</p> <ul style="list-style-type: none"> • Once the desired end user app is found test how it can be deployed <ul style="list-style-type: none"> - download - agreement of terms - installation - first run of the application <p>6) MP-41: App Store UI (app usage and management)</p> <ul style="list-style-type: none"> • Once end user application is deployed, evaluate how useful MOBiNET environment is for repeated usage of the app • Explore the possibilities to manage applications, access to them etc. in the MOBiNET UI • Uninstall the MOBiNET application (and see implications) <p>Does MOBiAGENT bring added value for end user application discovery, deployment and use? Uninstall the MOBiNET application (and see implications)</p>
--	--

MMTA app and service implementation

Validation Scenario ID	VS_SPA_SAD_SD_06-R2
Name	MMTA app and service implementation
Requirement Category	Service & app development
Point of View (Stakeholder role)	Service/App developer
Description	This scenario includes evaluation of the activities needed to utilize MOBiNET features and software development environment in the further development of the MMTA service and app.
Objective	The intention in the MMTA development is to utilize MOBiNET in the following ways:

	<ol style="list-style-type: none"> 1) MMTA checks from Service Directory which B2B content and service provider to use depending on the end user context and preferences 2) MMTA backend utilizes B2B content as defined in and found by querying Service Directory 3) MMTA backend utilizes PRT service/ multi-modal engine service found in Service Directory 4) MMTA app communicates with backend selected as a result from the query to Service Directory to provide MMTA service and collects mobility data from end users <p>In the validation of realization of the desired MMTA utilization we evaluate different aspects, like::</p> <ul style="list-style-type: none"> - availability, quality and usefulness of the required documentation - availability and suitability of the MOBiNET features fulfilling MMTA service and app development needs - easiness of the exploitation of the MOBiNET features in development and added value compared to the realization of same/similar features without MOBiNET - quality of the MOBiNET functionality: performance/response times, scalability, fault tolerance, robustness, security etc. - gap between expected functionality vs. offered functionality - usability and usefulness of the offered and supported tools for MOBiNET development. 		
Validation Pilot site	SPA		
Requirements validated	Requirement		
	ID	R	Name
	MP-23	1	Support for desktop style web applications
	MP-24	1	Supported Platforms
	MP-50	1	Location info
	MP-591	2	REST API of Service Directory
	MP-612	2	MOBiAGENT API's
	MP-633	2	Cover more advanced web service development aspects
	MP-636	2	MOBiAGENT SDK
Service(s) used in validation	MMTA		
Process (validation steps)	<p>In addition, not all the development work listed below is done in the context of R2.1 but also with later releases as the functionality becomes available.</p> <ol style="list-style-type: none"> 1) Obtaining Multimodal search 		

	2) The data provider by the B2B service is displayed to the end user according to the location
--	--

GLOSA app and service implementation

Validation Scenario ID	VS_SPA_SAD_SD_07-R2											
Name	GLOSA app and service implementation											
Requirement Category	Service & app development											
Point of View (Stakeholder role)	Service/App developer											
Description	This scenario includes evaluation of the activities needed to utilize MOBiNET features and software development environment in the further development of the GLOSA service and app.											
Objective	<p>The intention in the GLOSA development is to utilize MOBiNET in the following ways (if appropriate functionality is offered – <i>topics in cursive are currently known to be out of project scope in a great probability</i>):</p> <ol style="list-style-type: none"> 1) GLOSA backend posts messages to CA for distribution to local MOBiAGENT clients. This way only clients in a region specified when posting the message will receive the data. 2) GLOSA app connects to the MOBiAGENT to retrieve position and communication updates. The communication is arranged by the CM inside the MOBiAGENT and should only receive messages relevant to the location of the device running the MOBiAGENT. <p>In the validation of realization of the desired GLOSA utilization we evaluate different aspects, like::</p> <ul style="list-style-type: none"> - availability, quality and usefulness of the required documentation - availability and suitability of the MOBiNET features fulfilling GLOSA service and app development needs - easiness of the exploitation of the MOBiNET features in development and added value compared to the realization of same/similar features without MOBiNET - quality of the MOBiNET functionality: performance/response times, scalability, fault tolerance, robustness, security etc. - gap between expected functionality vs. offered functionality - usability and usefulness of the offered and supported tools for MOBiNET development. 											
Validation Pilot site	SPA											
Requirements validated	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #00A0C0; color: white;"> <th colspan="3"><i>Requirement</i></th> </tr> <tr style="background-color: #00A0C0; color: white;"> <th style="width: 15%;">ID</th> <th style="width: 5%;">R</th> <th style="width: 80%;">Name</th> </tr> </thead> <tbody> <tr> <td>MP-23</td> <td>1</td> <td>Support for desktop style web applications</td> </tr> </tbody> </table>			<i>Requirement</i>			ID	R	Name	MP-23	1	Support for desktop style web applications
<i>Requirement</i>												
ID	R	Name										
MP-23	1	Support for desktop style web applications										

	MP-24	1	Supported Platforms
	MP-50	1	Location info
	MP-591	2	REST API of Service Directory
	MP-612	2	MOBiAGENT API's
	MP-633	2	Cover more advanced web service development aspects
	MP-636	2	MOBiAGENT SDK
	MP-731	3.0	Provide accelerometer data from mobile phones
Service(s) used in validation	GLOSA		
Process (validation steps)	<ol style="list-style-type: none"> 1) Obtaining positioning data 2) Retrieving communication messages through CA/CM 		

RTTI app and service implementation

Validation Scenario ID	VS_SPA_SAD_SD_08-R2
Name	RTTI app and service implementation
Requirement Category	Service & app development
Point of View (Stakeholder role)	Service/App developer
Description	This scenario includes evaluation of the activities needed to utilize MOBiNET features and software development environment in the further development of the RTTI service and app.
.Objective	<p>The intention in the RTTI development is to utilize MOBiNET in the following ways (if appropriate functionality is offered – <i>topics in cursive are currently known to be out of project scope in a great probability</i>):</p> <ol style="list-style-type: none"> 1) RTTI messages/events are available for the referred location 2) RTTI app communicates from the information to the end users <p>In the validation of realization of the desired RTTI utilization we evaluate different aspects, like::</p> <ul style="list-style-type: none"> - availability, quality and usefulness of the required documentation - availability and suitability of the MOBiNET features fulfilling RTTI service and app development needs - easiness of the exploitation of the MOBiNET features in development and added value compared to the realization of same/similar features without MOBiNET - quality of the MOBiNET functionality: performance/response times,

	<p>scalability, fault tolerance, robustness, security etc.</p> <ul style="list-style-type: none"> - gap between expected functionality vs. offered functionality - usability and usefulness of the offered and supported tools for MOBiNET development. 		
Validation Pilot site	SPA		
Requirements validated	<i>Requirement</i>		
	ID	R	Name
	MP-23	1	Support for desktop style web applications
	MP-24	1	Supported Platforms
	MP-50	1	Location info
	MP-591	2	REST API of Service Directory
	MP-612	2	MOBiAGENT API's
	MP-633	2	Cover more advanced web service development aspects
	MP-636	2	MOBiAGENT SDK
MP-731	3.0	Provide accelerometer data from mobile phones	
Service(s) used in validation	RTTI		
Process (validation steps)	<ol style="list-style-type: none"> 1. Obtaining traffic information (Road authorities, FCD providers, map providers...) 2. Retrieving event/messages via Communication Agent 		