Multimodality for people and goods in urban areas

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WP1 – First Technical Quality Report

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Instant Mobility WP1
First Technical Quality Report

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Deliverable Abstract (1 page)

First Technical Quality Report: A management level overview of the quality process within the project, the identification of quality related problems encountered during the project and the remedial action taken

This document describes the status of the relevant parts of the global standardization landscape, and plans related to Instant Mobility activities. These standards would be used in order to make the most efficient use of past developments and help move technologies to the market.

To understand the broad range of topics covered, it is sufficient to note that the Instant Mobility has described thirty-seven elementary services and is now working on three scenarios:

- Personal Travel Companion
- Smart City Logistics
- Transport Infrastructure as a Service

In this first version of this document, related Standardization Organizations are described with their associated and most interesting standards.

Regulation recommendations will be developed in the future version including results from on-going acceptability surveys and feedback from the cities involved in Instant Mobility project.

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1. Introduction

This first report describes how the Instant Mobility consortium applied the “Instant Mobility Quality report” to:

- Manage in the best way potential deviations regarding the original GANTT,
- Assume to deliver good results,
- Contribute actively to cooperative actions at program level.

This report introduces also some corrective actions the Project Management Committee validated based on Work Package Leader recommendations to improve the Quality process and enhance the team spirit.

2. Progress and results monitoring

Since the beginning of the project, a PMC took place each month to manage collaboratively with Work Package Leaders (WPL) the main technical and administrative issues. All topics were discussed and any some actions were scheduled to resolve the identified issues.

The additional planned long term progress monitoring tool was the Activities and Resource Reporting, which should take place every 4 months but this activity was aligned during this first year with the first review, which occurred at month 6, and to prepare the first year review to avoid any administrative overhead for all Instant Mobility partners.

2.1 Milestones

Based on the initial GANTT chart, Instant Mobility project defined seven milestones. We are focusing here on the milestones MS1, MS2 and MS3 which occurred during the first year of the project.

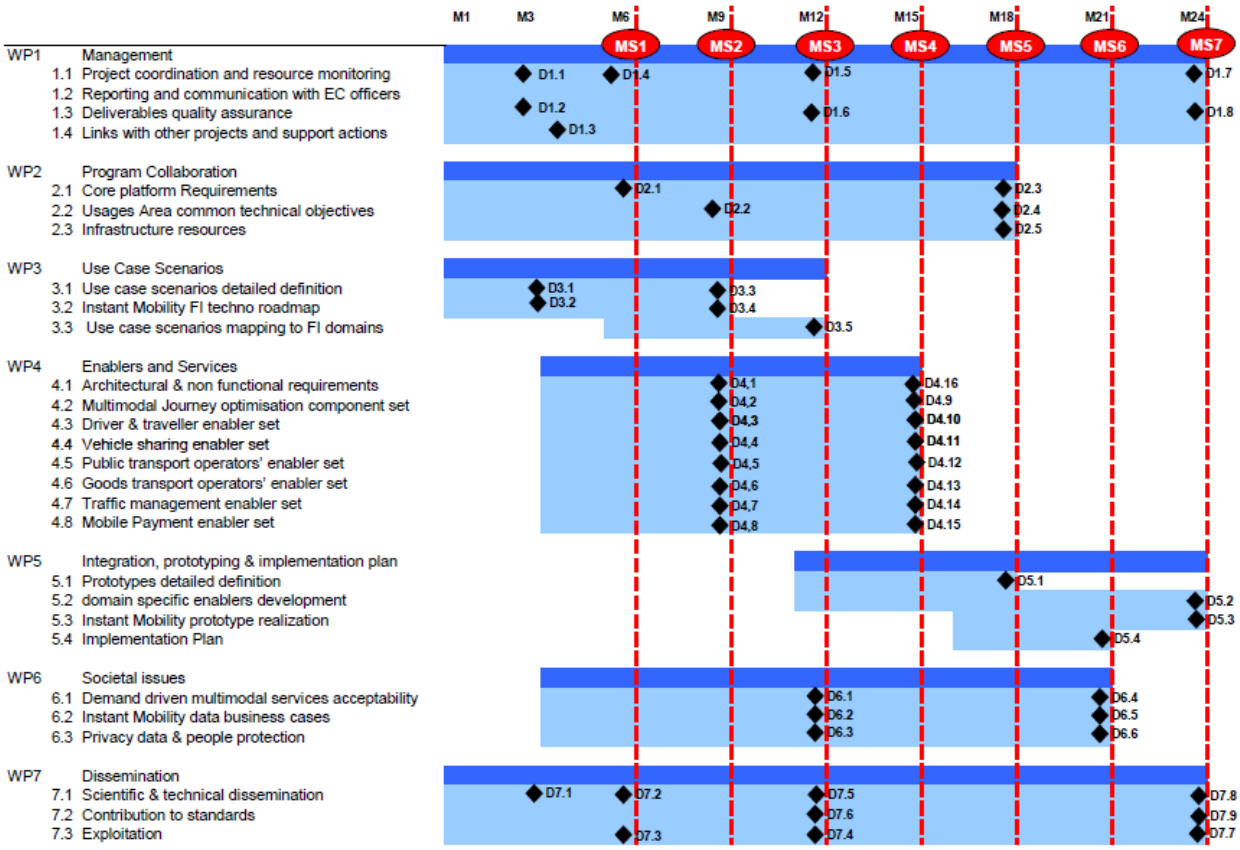

Figure 1: Instant Mobility initial GANTT

The main achievements expect for these first three milestones are the following:

MS1 Initial requirements Planned M 6
Objective: Delivery to program level of Instant Mobility initial requirements

MS2 Scenarios Planned M9
Objective Final version of use case scenarios

MS3 Societal Issues PlannedM12
Objective: Initial recommendations on acceptability requirements

MS1: Initial requirements

This milestone refers to the first visible impact that the Use Case Project Instant Mobility could have on the Future Internet Program providing first functional requirements to FI-Ware project. These first requirements should improve the understanding at the program level of generic technical needs to support multi-modal services and how these generic needs could be shared with some other Use Case projects.

The first requirements were provided on time using the Agile Methodology and a tracker system negotiated at the Architecture Board (consensus process which required 2,5 months) and instantiated by FI-Ware project.

The Instant Mobility partners had to learn the Agile Methodology as described and applied by Architecture Board members, especially FI-Ware project, and then delivered Instant Mobility requirements into the common tracker system. All requirements described as EPICS were delivered on the FI-Ware wiki for end of September 2011.

This delivery was supported by the first Instant Mobility scenarios draft descriptions all partners shared during the General Meeting held in Brussels in September 2011.

MS2 Scenarios

This milestone refers to the final version of the envisaged Use Case scenarios. The initial vision of the project was to focus on five lead scenarios:

- multimodal travellers (using several means of transport during the same journey)
- car drivers and passengers
- public and other collective transport operators, including taxi fleet operators
- truck fleet operators and the distribution industry
- road operators and traffic managers

But one of the objectives of Instant Mobility was also to enhance the collaboration between Transport stakeholders and ICT companies.
Based on the first descriptions of these five lead scenarios into 37 elementary services, it appeared that we had to revise this subdivision into 3 new scenarios called “development scenarios”. These new scenarios would gather the most innovative topics of the previous lead scenarios to support a better definition of the envisaged prototype Instant Mobility team has to define in Work Package 5.
To deliver this new vision and to try to integrate some dimensions provided by the other projects (FI-Ware: which are the most relevant generic enablers, other Use Case projects: some services commonalities), this milestone was delivered with **2 months delay at month 11**.

MS3 Societal Issues

This milestone refers to the preliminary report of Instant Mobility multimodal services acceptability survey. This survey was originally planned for January 2012. The quality of results is of course related to the quantity of answers not to reach a statistical point of view but to integrate the diversity of the European stakeholders involved in Instant Mobility: Istanbul (Turkey), Roma (Italy), Nice Côte d’Azur (France) and Trondheim (Norway).

Based on some methodology changes, the first survey was on-line end of February so the first results are available but with a very rough analysis.

But when the project expects to have between 800 and 1000 answers, we reach more than 4000 answers with only Istanbul, Roma and Nice Côte d’Azur.

Two other surveys are planned to complete these results: Trondheim (as expected) and Toledo (associated member). These two on-line surveys will provide better understanding of European acceptability for Instant Mobility services.

Feedback on these first milestones:

MS1: if Instant Mobility delivered on time its first requirements, the process based on the tracker system and virtual exchanges with some technical people from FI-Ware project did not provide the expected feedback, first because of the gap between the functional descriptions provided by Instant Mobility and the very detailed technical description expected by FI-Ware project, second because of the delay between EPICS submission and some exchanges required to clarify requirement at a technical level.
This misunderstanding between the two projects, Instant Mobility and FI-Ware, introduced also some delays for some deliverables (technical description of expected Generic Enablers not available or requiring deep analysis).

MS2: to share different view between transport stakeholders and ICT Companies took more times than expected but we consider that this was a fruitful operation to clearly identify what are the main innovative topics that Instant Mobility could bring to the market and could be experimented in the next phase.

MS3: to define the right methodology to study the main acceptability topics required more time than expected, especially to define a questionnaire which could be relevant for the different countries and associated transport culture. Based on the number of answers Instant Mobility could collect and as we are able to involve also an associated member to investigate some usage in another country (Spain), we consider that the delay will be profitable for the second year of the project.

2.2 Program collaboration

Program collaboration is one of the main challenges for all projects involved in the Future Internet program and this collaboration need some improvement regarding Instant Mobility objectives and resources management:

The collaboration, as defines into the Collaboration Agreement, is essentially based on two bodies: the Steering Board and the Architecture Board.

The Steering Board targets some strategic issues and involved 2 people from Instant Mobility: the Project Coordinator and a Stakeholder Representative. This board can also decide the creation of some Working Groups which could target some relevant issues at Program Level.
No working groups were active during the first six months but some are now running and would enhance and consolidate the program view for some topics as “standardisation” or “involvement of new stakeholders” to improve Future Internet program impact.

The Architecture Board manages the technical decisions to share between the Core Platform Project and the Use Case project, and involve for Instant Mobility the Technical Manager and Work Package 4 representative in charge of Instant Mobility Architecture description.

But after two months, another board appeared: the Concertation Board. This new body concentrate some efforts to optimize the support of the Support Action Infinity to deliver the best view of stakeholders’ involvement and some relevant actions to prepare the next phases of the Future Internet program.

All the actions and contributions regarding the different program bodies have an impact on Work Package 2 activities and for some deliverables Instant Mobility has to deliver.

Meetings

Steering Board and Architecture Board have monthly meetings which are mostly remote meetings for the Steering Board and face to face meetings for the Architecture Board, especially because the technical topics required more time to reach a consensus between nine projects.

The Concertation Board meetings are organized every 3 or 4 months which very specific topics as the identification and description of all relevant technical environments identified by the Use Case projects, or the main Security and Privacy issues for each project.

Feedback of program collaboration

- Contribution to Steering Board and Architecture Board improve Instant Mobility understanding of other projects objective and how we can identify some commonalities (technical enablers, potential cross scenarios)
- These activities are time consuming, are not fully integrated into the initial GANTT and the impact on Instant Mobility deliverables was under evaluated.
- To reach decision by consensus implies some delays on technical or strategic decisions which at the end impact Instant Mobility deliverables. Typically, it required more time than expected to organized some Use Case projects meeting to share potential cross-related topics (Steering Board action) or to define a common process to submit technical requirements (Architecture Board action – 3 months)
- Difference between Milestones and Deliverables: the Description of Work tries to synchronize all projects on the same milestones without to integrate which are the respective deliverables. To be able to

share a common planning, exchange deliverables descriptions should improve the collaboration and define new milestones which could be really shared by all projects. Instant Mobility deliverables are too related to expected results from collaboration (FI-Ware technical description, collaboration with other Use Case projects) which implies delays which are difficult to manage.

3. Quality Plan improvement

3.1 Mailing-lists

To improve communication inside Instant Mobility Consortium, mailing-lists have been put in place.

The guidelines to create a mailing-list or add new members are available on the internal project website (www.projectplace.com) so each Work Package or Task leader can create a dedicated mailing list for technical purpose.

The main mailing-list is main@instant-mobility.org to target discussions on topics of interest for the whole consortium.

Project lists are private lists, which mean that the list of members is not available to non-members. To see the collection of prior postings to the list, visit the WpX Archives but the current archive is only available to the list members.

These mailing-list guidelines have been integrated into the Instant Mobility Quality Plan.

3.2 Use Case numbering

As Instant Mobility consortium has to differentiate initial lead scenarios and development scenarios, and to improve readability of technical sequence diagrams, a new proposal for application numbering and Use Case codification was introduced:

WP3 scenarios were numbered :

SC1: Personal travel companion (Prefix SC + scenario number)
SC2: Smart city logistics operations
SC3: Transport Infrastructure as a Service

Applications under scenario are also codified with scenario number, e.g. :

- AP**1**A Dynamic multi-modal journey (prefix 'AP' + scenario 1 + application letter A, B, C, …)
- AP1B: Dynamic ride sharing
- AP1C: Optimized public transport usage
- AP1G: Ticketless Mobile Payment

Use Cases are codified depending on the 'application' codification they belong to, e.g. :

- UC**1A**.01: Plan Future Journey (Use Case prefix UC, scenario 1, application A, sequential numbering on 2 digits starting with 01)
- UC**1A**.02: Plan Immediate Journey
- …
- UC**1B**.01: Maintain driver itinerary

Services in Service Model diagram are codified using SV+, taking into account application codification.

- SV1A.01: service prefix SV, scenario 1, application A, sequential numbering on 2 digits starting with 01

Use case numbering has been integrated into Instant Mobility Quality Plan.

3.3 Deliverables internal peer review

To optimize the internal review process, peer reviewers have been appointed for all deliverables Instant Mobility has to deliver during the first year. This list is available on the internal project website for all deliverable editors.

Delivery date	Deliverable name	Responsible partners	Internal reviewers

M3	D1.1 - quality plan	FTE	Thales, DLR
M3	D3.1 - Use case scenarios v1	Ertico	FT, Ericsson
M3	D3.2 - Technologies roadmap v1	FTE	Mizar, VTT
M3	D7.1 - project website	VTT	ISBAK, ATAC
M4	D1.2 - leaflet	Ertico	Pertimm, NCA
M6	D1.3 - management report	THS	ALL
M6	D2.1 - Requirements v1	TID	Volvo, IFSTTAR
M6	D7.2 - Dissemination plan	Ertico	CRF, FT
M6	D7.3 - Exploitation plan	Ertico	DHL, STVEG
M9	D2.2 - shared usage areas commonalities	FTE	CEA, Ertico
M9	D3.3 - use case scenario final report	Ertico	TID, DLR
M9	D3.4 - technology roadmap final report	FTE	Navteq, Ericsson
M9	D4.1 - global architecture	DLR	TLI, Thales
M9	D4.2 - Multimodal Journey optimisation enablers specifications v1	IFSTTAR	CEA, FT
M9	D4.3 - Driver & traveller enablers specifications v1	NAV	Mizar, DHL
M9	D4.4 - Vehicle sharing enablers specifications v1	CRF	Pertimm, Volvo
M9	D4.5 - Public transport operators'enablers specifications v1	THS	CRF, VTT
M9	D4.6 - Goods transport operators' enablers specifications v1	Volvo	STVEG, Ertico
M9	D4.7 - Traffic management enablers specifications v1	MIZ	Navteq, Valeo
M9	D4.8 - Mobile Payment enablers specifications v1	TLI	TID, IFSTTAR
M12	D1.4 - management report	THS	ALL
M12	D1.5 - technical quality report	FTE	Ericsson, Valeo
M12	D3.5 - use cases requirements	Ertico	ATAC, NCA
M12	D6.1 - multimodal services acceptability report v1	IFSTTAR	Mizar, DLR
M12	D6.2 - Data Business Cases for Transport in Urban Areas report v1	FTE	TLI, Ertico
M12	D6.3 - Multimodal services in a city: security and privacy challenges report v1	THS	ISBAK, Pertimm
M12	D7.4 - Exploitation plan v2	Ertico	Volvo, DHL
M12	D7.5 - scientific results v1	VTT	IFSTTAR, CRF
M12	D7.6 - Standardization & regulation recommendations report v1	FTE	CEA, Thales

4. Risk management

4.1 Technical resources for common technical specifications

Instant Mobility decided in July 2011 to use Enterprise Architect (EA) to manage a common description of scenarios and use case diagrams for technical specification.

Unfortunately without configuration management we were not able to ensure consistency of our model artefacts. Each partner having its own model, EA was used solely as a drawing tool not a collaborative mean. In order to achieve harmonization and real-time cooperation, it was decided to integrate EA with a subversion repository. After a request to FI-WARE (http://forge.fi-ware.eu/) to no avail, we settled for a java.net public repository.

In February 2012, it was been pointed out that the version control of Enterprise Architect did not support merging! The way the modeling tool addressed this shortcoming was by using the SVN locking mechanism. In other words, only one user could check out a given package at the same time. To alleviate this issue, our components package was split into several sub-packages (one per subsystem) each of them under configuration.

As far as WP4 is concerned, the combination Enterprise Architect/Subversion was a godsend. Partners were not only able to follow each other progress, reuse common components (FI-WARE or domain dependant) but the integrated model could also be reviewed collaboratively during our weekly teleconference using Project Place Online Meeting.

4.2 Collaboration with FI-Ware project

As FI-Ware is the technical project which should provide Generic Enablers – enablers that should be used by more than one project to support innovative services in a vertical market –collaboration between Instant Mobility and FI-Ware is critical.
From the beginning of the project, Instant Mobility consortium has developed two different approachs to collaborate with FI-Ware:

- Based on functional descriptions from Instant Mobility Use Case Scenarios, we have submitted some requirements related to the five main technical chapters of FI-Ware
- Based on FI-Ware public material, Instant Mobility technical team has communicated the main technical characteristics of the planned Generic Enablers to the Instant Mobility consortium

At Month 12, we can consider that the collaboration is running under **two major risks**:

1 – The process to submit requirements to FI-Ware gave a low feedback on our requirements:
In fact, the Agile Methodology deployed to submit requirements is a developer methodology when Instant Mobility partners involved in Use Case scenarios are business or services-oriented. These partners cannot directly apply the Agile Methodology and all efforts are supported by Instant Mobility to make its requirements compliant with FI-Ware approach.
The Architecture Board took 3 months to reach a consensus on what are Themes/Epics/User Stories, and Instant Mobility team required 3 months more to have technical material and to understand what could be Generic Enablers.
The virtual process based on submitted EPICS, and then FI-Ware Epics analysis provided new virtual exchanges, mainly based on FI-Ware forge, with little improvement of a common technical understanding of Instant Mobility requirements for FI-Ware, and interfaces and functionalities of Generic Enablers for Instant Mobility.

2 – Based on our understanding of FI-Ware Generic Enablers, technical teams have tried to introduce some Generic Enablers in our Architecture description and more specifically, into the sequence diagrams used for Instant Mobility Specific Enablers technical specifications.
Because of a vague interface description of FI-Ware Generic Enablers, it is very difficult for Instant Mobility to assume that some of the Generic Enablers will really provide the expected functionalities, assuming also some non functional requirements as performance, scalability, reliability or resilience.

To manage these two major risks, Instant Mobility has proposed to FI-Ware to organize a technical meeting where Instant Mobility experts could described their Specific Enablers, and how these Specific Enablers are related to some Generic Enablers and would be supported by dedicated functionalities.
This meeting should also provide to FI-Ware team a better understanding of our non-functional requirements and provide an opportunity to better understand some other Generic Enablers.

The meeting might also deliver new technical requirements to FI-Ware in a more reactive way than previously.

The meeting should happen in May 2012.

4.3 Collaboration with Use Case projects

Based on early discussions with some other Use Case projects, Instant Mobility has planned to have strong links with the other Use Case projects to define some common technical and non-technical requirements.

The idea was submitted after Month 6 to organize some common meetings to share our scenarios and to identify these common requirements.
It took more time than expected to organize such meetings, especially because each project would have mature scenarios and because of planning which were overbooked by many other collaboration or internal activities.
These common Use Case meetings are now organized on a more regular basis since end of January (One meeting every two months).

Instant Mobility team took the opportunity to organize some peer to peer meetings with SmartAgriFood, Finest and Safecity. Relationships with Outsmart project is managed by partners which are involved in both projects.

Instant Mobility has identified three different level of interest with the other Use Case Projects:

1 – High: SmartAgriFood, Finest and OutSmart
Traffic or logistics topics, as well as a kind of traceability are the common technical issues. Some other peer to peer meetings happened, especially with SmartAgriFood and Finest to identify some common scenarios which could use Specific Enablers from the 3 projects and support interesting trials in the PPP Future Internet Phase 2.
Outsmart could provide also some useful Smart City environment which could improve Instant Mobility urban services, as well as Instant Mobility enablers could provide an extensive view of a sustainable city environment.

2 – Medium: Safecity and EnviroFi
Some technical and business issues are identified but there are not mature enough to be clearly introduced in a trial scenario. Another meetings are required to evaluate the common interest.

3 – Low: FI-Content and Finseny
Based on the first discussions, no major issues or interest were identified. As the electric car is also targeted by another FP7 objective, it seems not relevant to spend more time on this dedicated scenario.
No specific User Generated Content is required for Instant Mobility scenario, so no innovative scenario was identified by FI-Content and Instant Mobility.

4.4 Partners involvement

Instant Mobility project was impacted during this first year by some partners' companies' strategy modifications:

- Ericsson withdrawal
- Navteq integration into Nokia company

To reduce the impact on Instant Mobility project and deliveries, a new partner has been involved, TNO, which was previously an associated partner aware of Instant Mobility activities.

- Ericsson withdrawal
  Until their withdrawal from the project on September 30th 2011, Ericsson worked with DLR to drive the work done in task 4.1 to prepare the global architecture that is suitable to house the enabler sets and to provide guidelines for the iterative refinement of their specification.

Ericsson withdrawal impacted Work Package 4 and 5 activities. Some of their activities have been taken into account by existing partners (Thales, Telecom Italia) and some other where reallocated to TNO, as new member.

- Navteq integration into Nokia company
  The partner Navteq has been bought by Nokia and is under heavy reorganisation. The Navteq entity involved in the project no longer has technical resources available for specification or implementation tasks. In the meantime a solution was agreed at consortium level, Thales took over the deliverable D4.3.

- TNO Involvement
  As associated partner, TNO was well aware of Instant Mobility objectives and work since the beginning of the project.
  Based on their scientific and technical knowledge, TNO started with a contribution to deliverable D4.16 of WP4.1. TNO works with DLR to ensure coverage of functions for the full system and ensure consistency of generic enablers form FI-WARE core platform and specific components provided by partners.
  TNO is also strongly involved into Work Package 6 for societal activities.

4.5 Work Packages

- The Work package 2 has a strong dependency on other projects of FI-PPP programme which agenda or delays can affect Instant Mobility deadlines.
  Following recommendations from FI-PPP programme reviewers, Instant Mobility will ask for changes when a wrong synchronization with other projects can affect the quality and usefulness of WP2 resutls.

- The Work Package 3 suffered from significant delays of around 2 months in the first round of deliverables D3.1 and D3.2 from the first period, that had a knock-on effect for the second round (Deliverables planned for M9).
  This work Package was planned based on strong relationships with FI-Ware project to provide technical inputs (Architecture and Generic Enablers description) to fuel Instant Mobility scenarios description. In addition, some lack of personnel availability during the summer months did not ease to put in place as soon as possible corrective actions.
  Globally the corrective actions did succeed in catching up the lost time from earlier reports, also, because a close liaison was maintained throughout with Work Package 2 and Work Package 4 this minimized the knock-on effects of delays on those Work Packages.

- The Work Package 4 suffered from Ericsson withdrawal at end of September 2011 (M5) which impacted Architecture description. (Deliverable D4.1)
  This withdrawal was made up by DLR involvement to finalize expected deliverables and by the involvement of a new partner, previously associated partner: TNO.
  Two tasks were also impacted by late description of full scenario 1, the more complex scenario including lots of transport actors which implied slight delay for deliverables 4.3 and 4.5.
  One main risk is not solved at the end of the first year: FI-Ware components relevance. There is a potential mismatch between the FI-Ware components currently defined and Instant Mobility needs (e.g. FI-Ware components overly complex). A strong technical collaboration with FI-Ware developers is required and a request will be send to FI-Ware team in April 2012 to solve this issue.

- The Work Package 6 suffered from methodology choices in task 6.1 (Acceptability survey) which did not reach easily a consensus. To solve this issue, task leadership was transferred from IFFSTAR to PERTIMM partner and the new partner TNO was also involved to bring its scientific knowledge.
  Task 6.2 suffered also some delays based on the definition of the three new development scenarios. Work Package 6 team took the decision to use the 3 development scenarios as baseline for the data business cases to improve consistency between technical Work Packages and Societal dimensions. This approach is fully align with cities requirements to evaluate the economical impact on cities environment and citizen services.
  One medium risk which is not solved at the end of the first year is the involvement of professional for a dedicated acceptability survey under professional constraints. The objective is to mobilize all Consortium partners and their professional networks and channel to be able to manage a survey with a relevant panel.

- The main risk managed by Work Package 7 is related to the quality of the partners exploitation plans. All the partners have been continuously made aware of the EC's expectations of the dissemination of the results. Work Package 7 team launched an extensive questionnaire of partners' exploitation plans. These exploitation plans will be updated regularly.
  The plan of exploitation workshops has been revisited, and the next three workshops have already been agreed to be organized in the participating cities and in connection with ITS Vienna conference to involve local stakeholders and collect their feedback on Instant Mobility services.