C-MOBILE

Accelerating C-ITS Mobility Innovation and deployment in Europe

D7.8: Liaison Plan (initial)

Status	Final
Main authors	Benedikt van den Boom (FIA)
Work Package	WP7 – Dissemination and Communication
Task	T7.4 – Liaison Activities
Dissemination level	Public
Issue date	30/11/2017

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 723311

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Revision and history sheet

Version	Date	Authors	Summary of changes	Status
0.1	02/11/2017	Benedikt van den Boom (FIA)	Table of Content, Draft Content	Prepared
0.2	16/11/2017	Jonathan Benton (ERTICO)	Comments, language editing	Reviewed
0.3	26/11/2017	Benedikt van den Boom (FIA)	Contact details removed, list of partners moved to annex, conclusions from 2nd GA added	Prepared
0.4	28/11/2017	Giacomo Somma (ERTICO) Tamara Goldsteen (HELMOND) Gert Blom (HELMOND)	Organisational balance, partners added, language editing, review of objectives, partners and activities	Reviewed
0.5	29/11/2017	Benedikt van den Boom (FIA)	New structure and content for Chapter 2, New structure and content for Chapter 5, Open Issues addressed in Chapters 1, 3 and 4 Several Liaison Partners removed,	Prepared
0.6	29/11/2017	Benedikt van den Boom (FIA)	Chapters on Liaison Approach consolidated, names removed from annex, references to deadlines removed, open issues from review addressed	Prepared
0.7	29/11/2017	Benedikt van den Boom (FIA)	Minor changes	Prepared
1.0	30/11/2017	Marcos Pillado (Applus+ IDIADA)	Review	Approved

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Abbreviations

Abbreviation	Definition
C-ITS	Cooperative Intelligent Transportation Systems
C-MobILE	Accelerating C-ITS Mobility Innovation and depLoyment in Europe
CAV	Connected and Automated Vehicles
DITCM	Dutch Integrated Testsite Cooperative Mobility
DG	Directorate-General
INEA	Innovation and Networks Executive Agency
IT	Information Technology
JRC	Joint Research Centre
TMT	Technical Management Team
VRU	Vulnerable Road User
WP	Work Package

Executive Summary

In the past years, there has been tremendous progress in the field of intelligent transport systems; several successful cooperative mobility projects have proven potential benefits of cooperative systems in increasing both energy efficiency and safety for specific transport modes. However, the large variety of cooperative applications have been designed for different goals, stakeholders or specific settings / environments and have been developed on a silo-based approach and deployed independently from each other, serving however, at higher level, similar goals and functionalities for the end-user. Scalability, IT-security, decentralization and operator openness are some of the most important properties that a technical and commercial successful solution must provide.

C-MobILE aims to stimulate existing and new real-life C-ITS deployments towards large-scale interoperable roll-outs across Europe. Well-defined operational procedures will lead to decentralized and dynamic coupling of systems, services and stakeholders across national and organizational borders in an open, but secure C-ITS ecosystem, based on different access technologies, the usage of which is transparent for service providers and seamless and continuous for the end-users across different transport modes, environments and countries.

This document provides a strategic liaison plan to advance the objectives of C-MobILE with external entities from the European Institutions, EU-funded projects, national actors and associations as well as international cooperation. It sets out the goals for liaison activities, identifies key partners and specifies how the liaison activities will be conducted, by whom and when. As a transversal activity, the document provides guidance for work packages in their future liaison, communication and exploitation activities.

1. Introduction

1.1. C-MobILE at a Glance

The C-MobILE (Accelerating C-ITS Mobility Innovation and depLoyment in Europe) vision is a fully safe & efficient road transport without casualties and serious injuries on European roads, in particular in complex urban areas and for Vulnerable Road Users (VRUs). We envision a congestion-free, sustainable and economically viable mobility, minimizing the environmental impact of road transport. C-MobILE will set the basis for large scale deployment in Europe, elevate research pilot sites to deployment locations for sustainable services that are supported by local authorities, using a common approach that ensures interoperability and seamless availability of services towards acceptable end user cost and positive business case for parties in the supply chain.

1.2. Objective

This deliverable specifies how the liaison with external entities will be done, by whom, when and what the liaison objectives for cooperation with specific partners are. The deliverable serves as stepping-stone for the liaison activities conducted in other work packages (WP), especially WP1 on Coordination and Management in relation to twinning activities and associated partners, WP4 on Enablers for Large-Scale Deployment in relation to the Joint Stakeholder Forum, replication capabilities to external cities and standardisation activities and WP7 on Dissemination and Communication in relation to technical dissemination. An update of this Liaison Plan will report on the liaison activities conducted and will be prepared as D7.9 in M24 of the project.

1.3. Intended Audience

The deliverable will be made public upon completion. Nonetheless, this deliverable is aimed mostly at an internal audience consisting of all consortium members. Each consortium member has been assigned a mentorship role for one or several potential liaison partners and is expected to engage with these partners.

1.4. Approach

This document couples a strategic and a pragmatic approach. On the strategic level, it situates the liaison plan within the horizontal liaison activities in the project and formulates adequate objectives. On the pragmatic level, the liaison plan suggests concrete activities, which identified mentors within the consortium can conduct vis-à-vis potential liaison partners. These liaison activities are conceptualised to be the starting point for further cooperation with external entities in WP1, WP4 and WP7.

Three aspects are not described in this document. First, the relationship with associated partners to the C-MobILE consortium will be covered by the Project Coordinator. This includes both current and future associated partners. Second, twinning activities will be developed and conducted by the Project Coordinator. Third, the document does not provide descriptive direction to the development or conduct of liaison activities under WP1 or WP4.

1.5. Document Structure

The remainder of this document is structured in three chapters. Chapter 2 considers the strategic framework for Liaison Activities in C-MobILE. Based on the analysis of liaison activities as horizontal activities, it formulates three overarching strategic liaison objectives. Chapter 3 formulates the liaison approach suggested to achieve these objectives. The Chapter introduces the concept of mentorship, outlines activities to be taken and key messages to be communicated. Based on a list of potential liaison partners, the chapter also identifies mentors for initiating the project's liaison activities. Chapter 4 concludes with an outlook into the implementation and the reporting on liaison activities under this plan as well as a summary of the role of this liaison plan in the context of the wider project.

2. Strategic Considerations

This chapter provides the strategic groundwork for the Liaison Plan. The first sub-section indicates the scope of liaison activities according to the Description of Action and the current status quo of the project. Based on this understanding of liaison as a cross-sectional activity, the second sub-section identifies liaison objectives for the duration of the project. The third sub-section identifies liaison objectives for the afterlife of the project. In conclusion, this chapter shows that liaison with external entities is a strategic activity to create stable relations to relevant players to guarantee dissemination of the project's achievements.

2.1. Liaison as Horizontal Activity

Liaison activities play a central role in multiple WPs of the C-MobILE project. This sub-section provides a short overview of project areas that engage in liaison with external partners. WPs, for which the Liaison Plan might be relevant, include WP1 on Coordination and Management, WP4 on Enablers of Large-Scale Deployment and WP7 on Dissemination and Communication. Whereas WP1 and WP7 focus predominantly on the duration of the project, WP4 addresses additional concerns regarding the afterlife of C-MobILE.

1. Liaison activities form part of the de facto work conducted in Task **T1.2 on Technical Management** as well as in the Technical Management Team (TMT). This task includes the coordination of associated partnership and of international twinning activities, for instance the US DoT - ITS Architecture Evolution or the Trilateral US-Japan-EU Working Group. The task started in M1 of the project.
2. Liaison activities are at the heart of **T4.1 on Pilot Sites Partnerships**., where a Stakeholder Forum of local national and international entities from a wide range of areas will be developed. The task started in M1 of the project.
3. Liaison activities additionally feature in **T4.2 on Replication Capabilities for Cities**. In this task discussions are conducted with cities that are interested in replicating C-MobILE solutions to address their mobility needs after the project ends. The task started in M6 of the project.
4. Liaison activities make up a segment of **T4.4 on Standardisation and Interoperability**, where members of the consortium are address issues related to C-ITS standards with relevant bodies. The task started in M6 of the project.
5. Liaison activities moreover form part of Task **T4.5 on Strategic Agenda** for future research, development and innovation, where external partner provide input on new developments. This task will start in M19 of the project.
6. Liaison activities underpin the work conducted in Task **T7.3 on Technical Dissemination**. Especially the organisation of workshops and webinars to disseminate the project outcome is dependent on sufficient registration and attendance rates, which liaison activities support. This task started in M4 of the project.
7. This deliverable is written under Task **T7.4 on Liaison Activities**. This task will prepare a liaison plan in form of the present document, organise local events at the C-MobILE sites and cooperate with external platforms, projects and organisations. The task started in M4 of the project.

This brief overview underpins three strategic considerations. First, liaison activities are a horizontal element within the C-MobILE project. They are conducted in multiple WPs across at least seven Tasks and are thus relevant to the success of the entire project. Second, in all tasks but T7.4, liaison with external entities serves concrete purposes, either on concrete links (for example associated partnership), on concrete tasks (for example standardisation) or on concrete events (for example workshops). Third, although most tasks with liaison components have already started formally, their main work will be conducted after the present point of time in the project.

These considerations provide the backdrop for the following conclusion on the purpose of this Liaison Plan: The present document provides an initial overview of external entities that are worthwhile for liaising. As such, it provides the foundational groundwork for more concrete liaison activities conducted in later stages of the project. The Liaison Plan does not prescribe tools, activities or partners for any of the tasks listed above. Instead, it catalogues potential external entities for the tasks to consider in their activities.

This strategic positioning of the Liaison Plan can be translated into two high-level objectives, which jointly require strong interpersonal bonds to be fostered between the consortium and external entities. During the project, Liaison Activities **communicate the project's undertakings and achievements**. Beyond the project, Liaison Activities **establish links to ensure continuation of C-ITS solutions**.

2.2. Liaison Objectives during the Project

The high-level objective for liaison activities focusing on the duration of the project is to communicate the undertakings of C-MobILE and its achievements to a relevant external audience. In order to not confuse this with general project communication and dissemination, it is necessary to translate this high-level objective into two concrete liaison objectives.

The first liaison objective is to **initiate strategic exchange with external partners**. Strategic exchange can happen with political entities as well as with other projects. Exchange on the political level would target general questions regarding the C-MobILE bundles and services. Exchange with other projects would target specific questions on project obstacles, shareable knowledge and experiences, in order to pre-emptively identify mitigation strategies for C-MobILE and achieve mutual benefit. The first objective can be achieved by exchanging knowledge and by introducing external entities to project activities as described further in Section 3.2 below. Once a successful strategic exchange has been initiated, the liaison activity should shift to the relevant specialised task.

The second liaison objective is to **increase the quality and quantity of participation in C-MobILE activities**. This includes workshops, webinars, local consultations, online surveys and other relevant activities. The objective is on the one hand to raise the number of participants, measured for instance in the number of registrations (especially from key external stakeholders) to a project workshop and related surveys or consultations. On the other hand, the objective is to increase the quality of participation, for example in the number of completed questionnaires. This first objective can be achieved by distributing invitations to external partners through dedicated communication channels, which are described further in Section 3.2.

2.3. Liaison Objectives beyond the Project

The high-level objective for liaison activities focusing beyond the duration of the project is ensure that stakeholders are informed about and interested in the possibilities to continue C-MobILE's C-ITS solutions. This does not mean that the liaison activities will be conducted after the end of the project, but rather that the emphasis of the liaison activities is to have a long-lasting effect.

The third liaison objective is to **create a network of cities interested in C-MobILE solutions**. A city network fulfils a dual function. On the one hand, cities can indicate their technical predisposition, their policy framework and their traffic management needs. On the other hand, cities can voice their interest in the uptake of services and solutions developed by C-MobILE. This way, business exploitation of the project can be supported. To some extent, this objective is similar to the City Pool developed by CIMEC and CODECS. The second objective can be achieved by distributing information about C-ITS deployment trends beyond the project's dissemination and communication activities as further described in Section 3.2.

3. Liaison Approach

This chapter describes the approach for implementing the liaison objectives listed above. The first sub-section introduces the concept of mentorship as a tool for facilitating close contacts. The second sub-section identifies initial activities and actions that can be taken vis-à-vis external entities. The third sub-section substantiates these activities with key messages that can be deployed at this stage of the project. The fourth sub-section links potential liaison partners to the liaison objectives. The final sub-section returns to the concept of mentorship and links this to each potential liaison partner.

3.1. Mentorship

Success of the liaison activities is dependent on a concerted outreach to the liaison targets. For this reason, this deliverable indicates where consortium partner can establish initial contacts to specific liaison partners. As such, members of the consortium can become **mentors** for liaison partners. Mentorship as a concept assists the formation of interpersonal bonds. External entities should know, whom to contact, if they want to get in touch with C-MobILE, which as a role can be taken by the assigned mentors.

This concept is not to be confused with **ambassadorship**, where external individuals are assigned the function to represent C-MobILE, which might be implemented by other Tasks as they see fit. Mentorship is also not understood as a rigid concept, but as an aspiration, which can be filled amongst others with the activities and actions listed in the next section.

3.2. Activities and Actions

This sub-section describes concrete outreach activities to initiate liaising with external partners. In principle, each of these six activities can be deployed for each partner and each objective. The final decision on how to best engage liaison partners lies with the assigned mentor.

1. **Mentors distribute invitations to surveys, workshops and webinars** organized by C-MobILE to the assigned external entity. For EU-funded project, mentors could transmit the invitation through dedicated mailing lists. For institutional actors, mentors could approach their contact person and ask for the invitation to be distributes.
2. **Mentors engage external entities during C-MobILE events**. This includes informal networking roundtables, as well as language-dedicated parallel sessions. This can apply to workshops as well as to interoperability tests, showcases or other public events, where external entities are present.
3. **Mentors disseminate information about the project**'s direction and achievements. This would include for instance to inform the partner about public deliverables. Alternatively, changes in the project's strategic direction, which might be of interest to external partners could be communicated by the mentor. This liaison activity is restricted by the confidentiality requirements of the project.
4. **Mentors exchange knowledge about project obstacles with external entities**. This applies specifically to other EU-funded projects, which might face problems similar to C-MobILE. This exchange could be initiated at events, which are attended by the mentor and the liaison partner.
5. M**embers of the consortium can initiate formal cooperative links**. If a liaison partner voices an interest in associated partnership, the mentor could establish links between this partner and the project coordinator. If new cities are interested in taking up C-MobILE related technology, the mentor could direct the liaison partner to the project coordinator for further information and next steps.
6. More extensive **mentorship entails to introduce external partners to project activities**. This activity could for example include winning external entities as speakers at C-MobILE events. Moreover, it could encompass the introduction of external entities to working groups or discussion groups.

3.3. Key Messages

These actions and activities can be initiated by reliance on the key messages for different stakeholder groups, which were formulated in D7.1 Dissemination and Communication Plan. For the purpose of this deliverable, these messages can be formulate more concretely, as given in Table 1. The messages are available for liaison outreach to the mentors, but mentors remain free to tailor their messages according to needs and requirements of potential liaison partners.

Key Messages	Description	Objective 1	Objective 2	Objective 3
Message 1	C-ITS services and bundles are beneficial. They are being deployed by C-MobILE. They target complex urban areas and include VRUs.	X	X	X
Message 2	Robust solutions to enable large scale C-ITS deployment are available. These include a common architecture as well as testing and evaluation methodologies. Other cities and regions can take advantage of this.	X	X	X
Message 3	C-MobILE generates project results and outcomes. This includes testing and deployment evaluation as well as a thorough analysis of stakeholder needs and requirements.	X	X	
Message 4	C-MobILE provides opportunities for business exploitation by quantifying costs and benefits of C-ITS solutions and developing business cases for all stakeholder groups	X		

Table 1: Key Liaison Messages (Adapted from D7.1)

The first objective of initiating strategic exchange can be communicated through all four key messages. Attention should, however, be paid to the stakeholder matrix delivered in D7.1 as well. The second objective on increasing participation in project activities is best communicated through Key Messages 1, 2 and 3. The third objective on an emergent network of cities is best communicated through the solution-oriented Key Messages 1 and 2.

3.4. Potential Liaison Partners

This sub-section introduces a clustered overview of potentially relevant liaison partners for C-MobILE.

1. The first group of liaison partners collates organisations, entities and ad-hoc bodies of the **European institutions**, whose scope of work is relevant to C-MobILE's project goals. Given the dynamic environment of ad-hoc entities initiated by the European Commission, all members of the consortium are invited to identify new bodies to liaise with. One example for this cluster is the EU-US Task Force.
2. The second group of liaison partners is a non-exhaustive list of relevant **EU-funded initiatives and projects**. They have been selected based on three main criteria: their relevance to C-ITS deployment, their emphasis on VRUs and their relevance to mobility solutions for heterogeneous and complex urban areas. The projects have not been selected based on their project members or location, nor on the exact envelope of funding. One example for this cluster is the InterCor Project.
3. The third group of liaison partners includes **international actors**. On the one hand, this group encompasses high-level international organisations. On the other hand, this group includes internationally positioned associations or consortia, which work in the realms relevant to C-MobILE. One example for this cluster is the Polis network of European cities.
4. The last group of liaison partners includes **nationally placed platforms** including associations, C-ITS deployment sites and projects. The underlying strategic decision for this section is to focus on national actors in the countries, in which C-MobILE pilot sites are located. National public authorities are not choses here, as these would be better addressed as individual associated partners. One example for this cluster is the Dutch Integrated Testsite Cooperative Mobility (DITCM)

An indicative list of potential liaison partners has been compiled based on D1.5 Innovation Management Plan and is included in Table 2 below. Further external entities have been selected based on their relationship and relevance to the core focus areas of the project, C-ITS development and urban deployment. This list is neither exhaustive, nor definitive, but serves as starting point with which to build upon throughout the project. The full description of these potential Liaison Partners is given in Annex 1: Description of Liaison Partners.

Liaison Partner	Objective 1 *Initiate strategic exchange*	Objective 2 *Increase scope of participation*	Objective 3 *Create network of cities*
European Institutions			
DG CONNECT	X		
DG MOVE	X		
JRC	X		
EU-US Task Force	X		
TRAN	X		
EU-funded Initiatives			
AUTOC-ITS			X
Bon Voyage			X
CITRUS	X	X	
CAD Initiative		X	
CAPITAL		X	X
CODECS	X	X	X
C-Roads Platform	X		
C-The-Difference		X	X
CROCODILE 2	X	X	
INFRAMIX			X
InterCor	X		X
MAVEN		X	X
PROSPECT			X
SCOOP@F	X		X
Social Car		X	X
International Actos			
UNECE	X		
ETSI	X		
Amsterdam Group	X		
Car2Car CC	X		
Polis		X	X
EUROCITIES		X	X
ERTRAC	X		
National Platforms			
DITCM	X		
MERIDIAN	X		
Mobility Clubs		X	
SOLRED	X		

Table 2: Matching Partners and Objectives

Potential liaison partners can be linked to strategic liaison objectives. It is possible for one liaison partner to be relevant towards several objectives. For instance, the CAD Initiative can be used to spread invitations links to C-MobILE events and to create links to the EU-US-Japan Working Group on Connected and Automated Driving. Not all liaison partners are relevant for all liaison objectives. For instance, the European Commission's JRC is not a relevant partner to create a network of relevant partner cities. Accordingly, no resources should be invested to liaise with the JRC towards this objective.

3.5. Applying Mentorship

Returning to the concept of mentorship described above, individual members of the consortium can be indicated as mentor for this indicative list of potential liaison partners (see Table 3). This assignment is based on four rationales:

1. Project Partner or Member Organisation: If a consortium member is already part of a different project or member of an association identified as potential liaison partner, they are listed as mentor
2. Existing Relationship: If a consortium member has worked in the past with an identified potential liaison partner and can exploit an existing relationship, they are listed as mentor.
3. Leadership Approach: If an identified potential liaison partner represents a high-level entity, mentorship falls to the project coordinator, in order to smoothen processes
4. Geographical Proximity: If none of the other elements applies, mentors are assigned on geographical proximity, i.e. being located in the same city or country, which could allow for easier outreach activities.

With an increased knowledge about the liaison partners' actual objectives and priorities, the Table will be revised in the updated Liaison Plan.

Liaison Partner	Consortium Partner	Reason for Linkage
European Institutions		
DG CONNECT	1 – IDIADA	Leadership Approach
DG MOVE	10 – ERTICO	Existing Relationship
JRC	1 - IDIADA	Leadership Approach
EU-US Task Force	1 – IDIADA	Existing Relationship
TRAN	11 – FIA	Geographical Proximity
EU-funded Initiatives		
AUTOC-ITS	19 – GTK	Geographical Proximity
Bon Voyage	3 – BLB	Project Partner
CITRUS	20 – MACQ	Geographical Proximity
CAD Initiative	11 – FIA	Project Partner
CAPITAL	10 – ERTICO	Project Coordinator
CODECS	15 – RACC	Project Partner
C-Roads	1 – IDIADA	Leadership Approach
C-The-Difference	21 – MAPTM	Project Coordinator
CROCODILE 2	30 – CERTH	Geographical Proximity
INFRAMIX	37 - TomTom	Project Partner
InterCor	10 – ERTICO	Project Partner
MAVEN	17 – Dynniq-NL	Project Coordinator
PROSPECT	1 – IDIADA	Project Coordinator
SCOOP@F	26 – GLS	Existing Relationship
Social Car	30 - CERTH	Project Partner
International Actors		
UNECE	1 – IDIADA	Existing Relationship
ETSI	10 – ERTICO	Existing Relationship
Amsterdam Group	1 – IDIADA	Leadership Approach
Car2Car	1 – IDIADA	Leadership Approach
Polis	6 – HLM	Member Organisation
EUROCITIES	7 – NCC	Member Organisation
ERTRAC	13 – IRU	Member Organisations
National Platforms		
DITCM	6 – HLM	Geographical Proximity
MERIDIAN	26 – UNEW	Geographical Proximity
Mobility Clubs	11 – FIA	Existing Relationship
SOLRED	19 – CEIT	Geographical Proximity

Table 3: Mentorship for Potential Liaison Partners

Given that almost all consortium members have resources available in WP7, no shortage of resources is foreseen in this area. For most liaison partners, there are multiple consortium members where such basis for responsibility exists. In this case, there is just one mentor listed in the Table above, with the objective of spreading responsibility to as many consortium members as possible.

4. Conclusion

As a conclusion, this chapter's first sub-section provides an outlook on the next steps for implementing the liaison plan and for mitigating associated risks. The second sub-section considers reporting and follow-up needs. The final sub-section summarises the role of this deliverable regarding opportunities for the wider project.

4.1. Implementation

This liaison plan will be implemented over the coming months of the project. To facilitate the implementation, the Liaison Plan needs to be presented to the consortium and substantiated by contact details. This shall entail a presentation to the TMT and individual exchanges with each mentor to create ownership of the outreach. Moreover, a confidential list of e-mail contacts for each potential liaison partner will be prepared. As a living document, the list of potential liaison partners will be continuously reviewed to identify new partners and those most relevant for other activities of the project.

4.2. Reporting

Mentors are not expected to report on each liaison activity and action conducted. Instead, a global reporting on this deliverable will be prepared in the D7.9 Updated Liaison Plan in M24. This will entail updates on relevant liaison partners as well as a revision of the mentorship approach. This report will also assess, to what extent the liaison objectives have been met. This report will not encroach upon the activities conducted in other parts of the project.

Material for the overall report will be collected from mentors at the time of preparation. Information on participation of external entities in project activities, for instance in preparing deliverables, and initiation of formal links will be recorded throughout the project at the level of the TMT.

4.3. Wider Project

In conclusion, this sub-section briefly summarises the liaison plan and the opportunities that it can bring to the overall C-MobILE project.

First, this deliverable specifies how the liaison with external entities will be done, by whom, when and with which objectives for cooperation. Liaison activities will be done through targeted outreach to identified partners with the overarching goal to create stable communication channels to external entities. Liaison activities will be done by mentors, which are consortium members that have been specifically assigned to individual external entities. The liaison activities will commence from the time of publication of this deliverable. The objectives for these activities are to initiate strategic exchanges with other entities, to increase participation at C-MobILE events and to create a pool of cities interested in taking up C-ITS solutions.

Second, liaison as understood in this deliverable bring specific opportunities to the wider project. The liaison activities are tailored to create stable communication channels and interpersonal bonds to other actors in the field of C-ITS. These channels and bonds can be exploited for relevant activities in other areas of the project. For instance, invitations to technical workshops can be sent to liaison partners and they might also be asked to participate as speakers in such events. Another example would be efforts to continue the life of C-MobILE solutions after the end of the project, for which the liaison activities with other European projects can identify cities that are interested in a closer dialogue on their mobility needs. Lastly, this deliverable does not constrain the opportunities for more specialised liaison activities, for instance with relevant standardisation bodies. As such, it provides the very initial step for activities that reverberate across the entire project.

5. Annex 1: Description of Liaison Partners

5.1. European Institutions

5.1.1. European Commission DG for Communication Networks, Content and Technology (DG CONNECT)

Newly created in 2016, DG CONNECT conceives and implements the policies required to create a digital single market. Its mission is to drive the digital transformation of European industry and public services through the use of innovative digital technology and support for the development of digital skills. DG CONNECT maintains various organisational units of relevance, for instance Directorate B on Electronic Communication Networks, Unit E.1 on Future Connectivity Systems and Unit H.2 on Smart Mobility and Living. All these units are located in Brussels.

5.1.2. European Commission DG for Transport and Mobility (DG MOVE)

In 2016, the European Commission adopted *"A European Strategy on Cooperative Intelligent Transport Systems"* (C-ITS). The objective of the C-ITS Strategy is to facilitate the convergence of investments and regulatory frameworks across the EU to support the deployment of C-ITS services by 2019 and beyond. This includes the adoption of the appropriate legal framework at EU level by 2018 to ensure legal certainty for public and private investors, the availability of EU funding for projects, the continuation of the C-ITS Platform process as well as international cooperation with other key regions of the world on all aspects related to cooperative, connected and automated vehicles.

5.1.3. Joint Research Centre (JRC)

In future scenarios (especially in the event of substantial increases in travel demand), traffic management will need to play a decisive role in enabling safe and efficient mobility, with increased control possibilities offered by a Connected, Coordinated and Automated Road Transport (C2ART) system. The Joint Research Centre (JRC) is investigating the impacts of connecting automated vehicle (CAV) technologies using a combined approach based on traffic modelling and simulation, desk research and stakeholder consultation. Some preliminary results of this research have been published in specialised conferences and in a JRC Science for Policy report.

5.1.4. EU-US Task Force

Initiated as a joint action between the European Commission's DG CONNECT and the US Department of Transportation (US DOT), the EU-US Task Force is focusing on synchronising work in the area of Cooperative Systems between Europe and USA. The Task Force has concretely advanced the harmonisation of Cooperative Systems, starting with the agreement on a common terminology. Priorities for ITS deployment are also discussed and the relevant stakeholders are involved in the working groups.

5.1.5. European Parliament Committee on Transport and Tourism (TRAN)

Although the European Parliament has been taking a relatively backseat position regarding European C-ITS approaches relative to the other institutions, the TRAN Committee is currently preparing an own-initiative report on the European strategy on C-ITS. Rapporteur is Hungarian MEP Istvan Ujhelyi (S&D).

5.2. EU-Funded Initiatives

5.2.1. AUTOC-ITS

AUTOC-ITS is a CEF transport project which aims to contribute to the deployment of C-ITS in Europe by enhancing interoperability for autonomous vehicles and the role of C-ITS as a catalyst for the implementation of autonomous driving. Pilot deployments will be implemented in Paris, Madrid and Lisbon. The autonomous vehicles will be tested in open and

closed traffic to check that they comply with the applicable traffic rules. The three pilot deployments will also test and evaluate C-ITS services for autonomous vehicles under applicable traffic regulations, study its extension to other European countries and contribute to the C-Roads and C-ITS platform as well as to other European standards organisations.

5.2.2. CITRUS

CITRUS's main focus is the development of a companion app for truck drivers which enhance road safety and improve logistics efficiency. The companion app services will be based on a cellular C-ITS approach in combination with geo-fencing broadcast technologies. CITRUS aims to demonstrate that this approach is the most pragmatic way towards rapid deployment. The proposed 'companion' is being seen as a natural evolution of current on-board ITS services. A major goal of this pilot deployment consists of the validation of the set ecosystem enabling a plethora of valuable C-ITS use cases using modern cellular networks and geo-messaging cloud services. The planned actions will lay the foundation of a large-scale roll-out and uptake of C-ITS applications in Belgium. The project is EU-funded.

5.2.3. Bon Voyage

The BONVOYAGE project aims to design, develop and test a platform optimising multimodal door-to-door transportation of passengers and goods. The platform integrates travel information, planning and ticketing services, by automatically analysing non-real-time data from heterogeneous databases (on road, railway and urban transport systems); real-time measured data (traffic, weather forecasts); user profiles and user feedback. The platform is supported by an innovative "information-centric" communication network that collects and distributes all the data required to operate. The highly heterogeneous and mobile nature of data and its distribution, coming from data-centres, sensors, vehicles, goods and people on the move, calls for an innovative networking approach. Current networks limit themselves to "just" providing communication channels between hosts and this is what the project aims to address.

5.2.4. CAD Initiative

The Connected Automated Driving in Europe Initiative is a joint Coordination and Support Action (CSA) by the European projects SCOUT and CARTRE. The CAD initiative organises an annual high-level conference, presents European projects in webinars, contributes to the strategic alignment of national action plans and organises 11 thematic interest groups, where high-level position papers on policy and research directions are formulated.

5.2.5. CAPITAL

CAPITAL stands for Collaborative capacity programme on ITS training-education and liaison. The aim of CAPITAL is to build a collaborative capacity building community and deployment programme to support public and private stakeholders in the implementation of ITS (C-ITS) with training and educational resources. The project will assist public and private stakeholders in developing their knowledge, skills, and abilities to build technical, business and policymaking proficiency of ITS deployment while furthering their career paths.

5.2.6. CODECS

CODECS acts as a central point bringing together all stakeholders involved in C-ITS deployment and its implementation phases. This is a CSA which aims to establish a stakeholder network for stimulating transparent information flows and exchanges of lessons-learned from initial deployment. Through workshops, webinars and personal consultation, CODECS collects information on the status and implementation approaches in early deployment activities (technologies, specifications and functions), roles and responsibilities of different stakeholders as well as issues for strategic decision making. CODECS consolidates and records these procedures, stakeholder interests, preferences and requirements. The results of CODECS sustain the interoperability of systems and services across hot spots of early deployment, enabling end-users to witness the benefits of cooperative road transport systems and services first-hand. CODECS promotes the idea of cooperative road transport systems and services to a broad target audience to support this effect.

5.2.7. C-Roads

The C-Roads platform brings together authorities and road operators from 16 European States (Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, UK) with the aim of harmonising deployment of cooperative intelligent transport systems (C-ITS) across Europe. The C-Roads project plans to develop harmonised specifications, taking the EU C-ITS platform recommendations into account, to connect all C-ITS deployments and carry out testing. The C-Roads platform is co-funded through the 2015 call of the Connecting Europe Facility (CEF) but is an open platform.

5.2.8. CROCODILE 2

CROCODILE 2 involves public authorities, road administrations and traffic information service providers to ensure coordinated traffic management and control results in high quality traveller information services. Partners from Austria, Bulgaria, Croatia, Cyprus, Czech Republic, Germany, Greece, Hungary, Italy, Poland, Romania, Slovakia and Slovenia are working together to improve cross-border traffic and transportation by implementing harmonised and synchronised ITS applications. CROCODILE 2 will contribute to the provision of EU-wide real-time traffic information services in line with EU regulation.

5.2.9. C-The-Difference

C-The Difference Pilots have been carried out in Helmond and Bordeaux. The project supports the capacity building of C-ITS services to deploy efficient and cost-effective solutions to urban mobility problems such as traffic efficiency, safety and environmental impact. C-The-Difference favours the interoperable, sustainable, scalable, replicable and reliable provision of C-ITS services. The project bridges the gap between most advanced C-ITS implementations in urban environment and large-scale deployment and operations by targeting professionals responsible for urban transport planning and operations, policy makers and decision makers.

5.2.10. INFRAMIX

INFRAMIX is preparing road infrastructure to support the transition period to automated vehicles and coexistence with conventional vehicles. Its main target is to design, upgrade, adapt and test both physical and digital elements of road infrastructure, ensuring an uninterrupted, predictable, safe and efficient traffic flow. INFRAMIX uses mature simulation tools adapted to the peculiarities of automated vehicles and develops new methods for traffic flow modelling to study the traffic-level influence of different levels of automated vehicles and with different penetration rates. It also aims to propose minimum, targeted and affordable adaptations of road infrastructure elements, physical, digital or a combination of the two. This work includes developing methods for communicating with all types of vehicles the control commands issued by the road operator along with the proposal of new kinds of visual and electronic signals. The project outcomes will be assessed via simulation and in real world situations such as on advanced highways. INFRAMIX is predominantly targeting highways, as they are expected to be the initial hosts of such mixed traffic systems, but the key results will be transferable to urban roads.

5.2.11. InterCor

InterCor (Interoperable Corridors) is a European project which aims to connect the C-ITS corridor initiatives of the Netherlands C-ITS Corridor (Netherlands-Germany-Austria), the French corridor defined in the SCOOP@F project, and the United Kingdom and Belgian C-ITS initiatives. The InterCor project plans to achieve a sustainable network of C-ITS corridors providing continuity and serving as a test bed for Day-One C-ITS service development and beyond. The project aims to enable vehicles and related road infrastructure to communicate data through cellular, ITS-G5 or a combination of both networks on road corridors running through the Netherlands, Belgium, the UK and France. The overall goal is to achieve safer, more efficient and more convenient mobility of people and goods.

5.2.12. MAVEN

MAVEN aims to provide solutions for managing automated vehicles in urban environments (with signalised intersections and mixed traffic). It will develop algorithms for organising the flow of infrastructure-assisted automated vehicles, and structuring the negotiation processes between vehicles and infrastructure. The MAVEN approach will substantially

increase traffic efficiency, improve utilisation of infrastructure capacity and reduce emissions. MAVEN will build a prototype system to be used both for field tests, extensive modelling and impact assessment. Furthermore, the project will contribute to the development of enabling technologies, such as telecommunication standards and high-precision maps. A white paper on "management of automated vehicles in a smart city environment" will position the MAVEN project results in the broader perspective of transport in smart cities, embed these with the principles and technologies for smart cities and service delivery. Pilots are organised in Helmond and Braunschweig.

5.2.13. PROSPECT

The PROSPECT project is developing the next generation active safety systems for protecting VRUs, in particular pedestrians and cyclists. Compared to first generation Autonomous Emergency Breaking (AEB)-pedestrian systems currently on the market, these new systems aim to significantly improve effectiveness thus reducing VRU accidents. PROSPECT expands the scope of scenarios in order to better understand vehicle-VRU accidents and to develop plans to improve the overall system performance. Furthermore, test methodologies and tools developed within PROSPECT will be considered for the 2018 European New Car Assessment Programme tests, supporting the EU goal of halving the road deaths from 2011-2020. PROSPECT focuses on active safety solutions where vehicle-based sensing (i.e. video, radar) is used to survey the vehicle surroundings and where the vehicle acts accordingly in case of an oncoming critical traffic situation with a VRU (i.e. driver warning, vehicle braking/steering).

5.2.14. SCOOP@F

SCOOP@F is a Cooperative ITS pilot deployment project that intends to connect approximately 3000 vehicles with 2000 kilometres of roads. It consists of 5 specific sites with different types of roads: Ile-de-France, "East Corridor" between Paris and Strasbourg, Brittany, Bordeaux and Isère. SCOOP@F Part 2 runs from 2016 to 2018. Its main objective is to improve the safety of road transport and of road operating staff during road works or maintenance. SCOOP@F Part 2 includes the validations of C-ITS services in open roads, cross border tests with other EU Member States (Spain, Portugal and Austria) and development of a hybrid communication solution (3G-4G/ITS G5). The project aims at reaching a critical mass in the number of tested vehicles, roads and services, in order to provide a representative evaluation of C-ITS. It also stimulates collaboration between automotive manufacturers and road operators, the exchange of best practice and innovation in solving common problems.

5.2.15. Social Car

Social Car's main objective is to develop a new communication network for intelligent mobility, sharing car-pooling information integrated with existing transport and mobility systems. This is achieved by means of powerful planning algorithms and integration within a liveable environment of public transport big data, carpooling and crowd-sourcing. The Social Car app provides users with a simplified travel experience allowing comparison and choice of multiple options. Social Car is being tested in pilot sites in Belgium, Croatia, Hungary, Italy, Luxembourg, Macedonia, Poland, Slovenia, Spain and the United Kingdom.

5.3. International Actors

5.3.1. United Nations Economic Commission for Europe (UNECE)

UNECE, as the only United Nations body dedicated to inland transport, offers a unique platform for shaping the legal framework and ensuring the safe introduction of future technologies. Since 2004, the UNECE Transport Division has led the discussion on ITS and in 2012 it formulated a Road Map for promoting ITS. UNECE strongly contributes to enabling automated driving functionalities as it is hosting the Multilateral Agreements and Conventions ruling the requirements and the use of these technologies. The relevant fora (e.g. WP.1, WP.29 and a subgroup on automated driving and ITS) follow the technical progress being made with the aim of ensuring that the benefits of these new technologies can be captured without compromising safety and other progresses achieved during the last decades. UNECE liaises with all stakeholders interested in this work.

5.3.2. European Telecom Standardisation Institute (ETSI)

ETSI is the European Telecom Standardisation Institute and is commonly known as a major contributor to global telecom standards such as GSM, LTE and DVB. ETSI also has a formal and legal role in Europe as it produces Harmonised European Norms. This is the operative part of the R&TTE directive which allows for the sale and operation of radio equipment without type approval. ETSI is organised within a number of Technical Committees (TC) where TC ITS covers Intelligent Transport aspects.

5.3.3. Amsterdam Group

The Amsterdam Group is a strategic alliance of committed key stakeholders with the objective of facilitating joint deployment of cooperative ITS in Europe. It includes the umbrella organisations CEDR, ASECAP, POLIS and C2C-CC. The Amsterdam Group includes the key stakeholders who have the means to jointly develop and deploy cooperative ITS in Europe. However, the members of the umbrella organisations have shared and own responsibilities and duties in relation to C-ITS. The umbrella organisations forming the Amsterdam Group send representatives of their members to the Amsterdam Group plenary meetings. A Management Team with one representative from each of the umbrella organisations provides proposals for strategic direction and contributions to the plenary meetings and the work of the organisation. The Amsterdam Group is active in facilitating the exchange of information, discussion and creation of solutions between the involved stakeholders in the context of C-ITS.

5.3.4. Car2Car Communication Consortium

The CAR 2 CAR Communication Consortium (C2C-CC) is a non-profit, industry driven organisation initiated by European vehicle manufacturers and supported by equipment suppliers, research organisations and other partners. The C2C-CC's objective is to further increase road traffic safety and efficiency by means of cooperative Intelligent Transport Systems (C-ITS) with Vehicle-to-Vehicle Communication (V2V) supported by Vehicle-to-Infrastructure Communication (V2I). It supports the creation of European standards for communicating vehicles spanning all brands. As a key contributor the C2C-CC works in close cooperation with the European and international standardisation organisations. In cooperation with infrastructure stakeholders the C2C-CC promotes the joint deployment of cooperative ITS.

5.3.5. Polis

Polis is a network of European cities and regions working together to develop innovative technologies and policies for local transport. Its aim is to improve local transport using integrated strategies that address the economic, social and environmental dimensions of transport. To this end, Polis supports the exchange of experiences and the transfer of knowledge between European local and regional authorities. It also facilitates the dialogue between local and regional authorities and other actors of the sector such as industry, research centres, universities and NGOs.

5.3.6. EUROCITIES

EUROCITIES is a network of major European cities. Its members are the elected local and municipal governments of major European cities. It brings together the local governments of over 135 of Europe's largest cities and over 45 partner cities that between them govern 130 million citizens across 39 countries. Through six thematic forums, working groups, projects, activities and events, it offers members a platform for sharing knowledge and exchanging ideas. Its aim is to shape the opinions of Brussels based stakeholders and ultimately shift the focus of EU legislation in a way which allows city governments to tackle strategic challenges at local level.

5.3.7. ERTRAC

ERTRAC is the European Road Transport Research Advisory Council and the European technology platform which brings together road transport stakeholders to develop a common vision for road transport research in Europe. ERTRAC aims to define strategies and roadmaps to achieve this vision and update the Strategic Research Agenda (SRA) and implementation research roadmaps. It also works to stimulate effective public and private investment in road transport research and innovation and enhance the networking and clustering of Europe's research and innovation capacities. In addition, ERTRAC promotes European commitment to research and technological development, ensuring that Europe

remains an attractive region for researchers, enhances the global competitiveness of transport industries and supports the implementation of Horizon 2020, the European Framework Programme for Research and Innovation.

5.4. National Platforms

5.4.1. DITCM (Netherlands)

The aim of the Dutch Integrated Testsite Cooperative Mobility (DITCM) is to accelerate and adapt innovations in smart mobility in the Netherlands as well and the rest of the world. DITCM is composed of 25 partners that are creating, testing and implementing new solutions to make mobility cleaner, safer and more reliable. This unique and broad cooperation between industry, research and government ensures that societal and policy goals are translated into enabling technologies and new business opportunities.

5.4.2. MERIDIAN (UK)

MERIDIAN, funded jointly by the British government's flagship £100m CAV investment programme and by industry, will create a cluster of excellence in driverless car testing, along the M40 corridor between Coventry and London, to accelerate the development of this technology, grow intellectual capital and attract overseas investment in the UK. A key part of the Industrial Strategy commitment is to develop world-class CAV testing facilities and infrastructure. The launch of the MERIDIAN brand follows a call for evidence by the Centre of Connected and Autonomous Vehicles (CCAV) in May 2016 into how the UK can integrate and strengthen its CAV testing facilities and to consider the case for a test bed to provide a focus for the industry.

5.4.3. Mobility Clubs

National mobility clubs draw on nation-wide membership of car drivers. They release regular magazines, have active websites, interact with their members through surveys and press releases and maintain open social media channels. Most European mobility clubs are organised within the Federation Internationale de l'Automobile (FIA). Clubs particularly relevant to the C-MobILE Pilot Cities include: FDM (Denmark), RACE (Spain), RACC (Spain, especially Catalonia – also a C-MobILE Consortium Member), ACA France (France), ANWB (Netherlands) and AA (UK). No Greek club is currently a member of the FIA.

5.4.4. SOLRED C-ITS Monitoring (Spain)

The overall objective of the Action is to test a new Integrated Fuel and Fleet Management System, the so-called C-ITS Telemat, which enables the automatic real-time calculation of the smartest route plan and the automatic estimation, authorisation and payment of the refuelling needed to complete a planned route. Moreover, the system provides the heavy-duty vehicles (HDV) drivers and fleet managers with useful notifications concerning maintenance scheduling, eco/safety driving, traffic issues as well as information on the estimated fuel consumption vis-a-vis the real one. The testing of this system will be done through a monitoring network which will involve approximately 53 Repsol service stations along the Spanish part of the Atlantic and Mediterranean core network Corridors.