

Exploitation plan

CIMEC deliverable D4.3

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Cooperative ITS for Mobility in European Cities

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Executive Summary

The exploitation plan is intended to stimulate and guide activities supporting the exploitation of the main findings and outputs arising from CIMEC. The project has created new insights to the views and requirements of city authorities regarding C-ITS, which have been documented in several reports but which are also backed up by comprehensive survey data. The view of the supply market has also been investigated, again backed up by survey data. These insights could be of value to many stakeholders, from local level up to European level and for the public and private sector alike.

The document starts by describing the most important CIMEC ‘assets’, in the form of reports, survey findings and networks. These assets cover: city views and requirements regarding C-ITS, supplier readiness for C-ITS, standardisation status and recommendations, roadmap for deployment and finally new C-ITS relationships created arising from the CIMEC workshops.

Chapter 3 identifies and describes those institutions and initiatives that could benefit from becoming acquainted with the CIMEC assets. These take up mechanisms are broken down by geographical level: European, Member State and local.

The subsequent chapter has been drafted based on input from the CIMEC partners as to the actions they plan or are already undertaking to make use of the CIMEC findings locally, for instance in their local C-ITS projects or other C-ITS activity, and to disseminate them more widely. The partner action descriptions show that all partners are active in various ways in the C-ITS community, through projects, policy making, standardisation, among others. They are therefore well positioned to use the findings and to promote them widely.

1. Purpose of this document

What is this document?

The exploitation plan describes the main findings and outputs of the CIMEC project (CIMEC ‘assets’), the most relevant bodies, programmes and initiatives that could benefit from these assets and the actions put forward by each CIMEC partner to promote the take-up (‘exploitation’) of these assets. The document therefore focuses on the exploitation of the CIMEC assets rather than the take up of C-ITS, which is addressed in the CIMEC roadmap (D3.3) for what concerns the CIMEC partner cities. The final section of the exploitation plan puts forward some recommendations for policy, further research and exploitation.

Why was it produced?

The main rationale behind the exploitation plan was to promote a reflection amongst CIMEC partners on how they could:

1. incorporate the results into their respective C-ITS activities (be that deployment activities or contribution to developments in other C-ITS areas such as standardisation or dialogue with other C-ITS stakeholders, notably industry players, the European Commission and Member States), and
2. proactively seek opportunities to disseminate the findings through their most relevant channels.

Hence, the CIMEC partners have provided ideas and written contributions to this document, notably to chapter 4 concerning partners proposed take up activities.

The ultimate goal of the exploitation plan is to ensure that the CIMEC legacy is not lost and that other relevant bodies, projects and initiatives can learn from the project. The document will ensure that CIMEC’s activities in its final months are directed towards promoting take up.

Who is it targeted at?

The plan is primarily targeted at the CIMEC partners themselves, as they are best placed to both take up the CIMEC findings and to seek opportunities for promoting their take up more widely.

2. Description of main exploitable findings/outputs

2.1. City views and requirements on C-ITS

Building a picture of city views and requirements regarding C-ITS was a key activity of the CIMEC project. To support this task, CIMEC collected the experiences, reflections and ideas of many European cities, through various means: local and regional workshops bringing together key local stakeholders within the partner cities and their respective regions; a pan-European city survey which secured more than 50 responses from city authorities; and, European-level workshops bringing together city authorities from across Europe as well as other urban stakeholders.

There are two main results from this exercise that are exploitable:

1. The CIMEC report (D1.1) '**City status and requirements for C-ITS deployment**' which brings together the main conclusions from the local and regional workshops and the survey findings, including a list of use cases of potential interest for cities;
2. The **results of the survey**, which provide evidence of what are the main city transport challenges and priorities, the level of knowledge of C-ITS and main reasons for not working with C-ITS and the perceived barriers to C-ITS deployment (by type, city size and region). These results offer useful data that can be used independently of the report D1.1.

2.2. Supplier market readiness for C-ITS

The purpose of this task was to investigate the readiness of ITS suppliers to bring C-ITS to the market. This exercise was conducted by means of a survey (in two phases) followed up by extensive outreach. This second activity was necessary in order to reach out to the wider supply market following a rather lower response rate to the survey. Indeed, the survey attracted primarily those companies that are already involved in C-ITS developments and are building products. Generally speaking this exercise showed that those active in national and European C-ITS research products are market ready whereas the rest (and biggest share) of the market may be aware of C-ITS but are waiting to see how the market evolves. The report '**Supplier Workshops**' (D2.3) summarises the main findings of the survey and the outreach activity.

2.3. Standardisation status and recommendations

This task set out to investigate the C-ITS standardisation requirements for the urban environment. The rather heterogenous environment of urban ITS/traffic management, which has grown organically over the decades, has led to a situation of either regional standards or proprietary systems (vendor lock-in) or fragmented systems. This is very different to the tidy standards world of the OEMs and motorway environment. The outcome of this task is encapsulated in a study '**C-ITS standardization requirements for the urban environment**' (D2.5), which presents two key results: the first is the identification of key, relevant ITS/C-ITS standards that cities need to be aware of when procuring and

deploying C-ITS. The second is a set of standardisation recommendations for the target audience (urban road operators and the European Commission, among others).

2.4. C-ITS roadmap for cities

The roadmap is the main output of the CIMEC project in that it is based on the main findings of all preceding project activities. It draws on an extensive consultation process with both city stakeholders and the ITS industry, and presents a practical and realistic view of how the urban C-ITS environment is likely to develop over the next 5-10 years. The Roadmap is intended to reflect a consensus view, that enables cities to plan for their future use of C-ITS in a way that yields real benefit at low risk; enables the industry to develop products on a timescale that is likely to meet a meaningful market demand; and enables policymakers to understand and address the residual challenges in achieving a coherent deployment of locally-relevant C-ITS across Europe. The roadmap is available in a short, medium and full-length version: the one pager in English, Spanish and German is targeted at politicians; the roadmap summary (approx. 15 pages) is intended for the decision maker; whereas the full-length version is intended for operational staff.

2.5. New urban C-ITS dynamics created

As part of the information gathering and outreach activities, workshops have become an important feature of the project. The workshops have proved useful in engaging with other local authorities, suppliers and other ITS stakeholders and were widely appreciated, especially by those people not involved in European research projects and therefore not active in the European C-ITS community. The regional/national and European workshops were particularly valued by participants and opportunities will be sought to keep this momentum going beyond the life of the project.

3. The main mechanisms for take up

3.1. European level – policy

What: EC C-ITS Deployment Platform - Urban WG

Why: The Platform for the Deployment of Cooperative Intelligent Transport Systems in the European Union (C-ITS Platform) was created by the European Commission in November 2014 to identify and address the barriers to the deployment of C-ITS (including security and data privacy) and to support the emergence of a common vision among stakeholders. The C-ITS Platform represents all the key stakeholders along the value chain including public authorities, vehicle manufacturers, suppliers, service providers, telecom companies among others. It was launched in November 2014 and completed its first phase in January 2016. The second phase is currently underway and includes, for the first time, a dedicated group on urban C-ITS which has actively sought to involve representatives of local government. Automation is also an important consideration in this second phase.

CIMEC link: CIMEC partners (Polis, Centaur Consulting, Albrecht Consult) are members of the urban group of the C-ITS Deployment Platform

What: CEN TC 278 WG17 (urban ITS)

Why: A new Working Group focusing on urban ITS has been established under the umbrella of the ITS technical committee (TC278) of the European standardisation body CEN. The work programme of this working group 'Intelligent transport systems - Standards and actions necessary to enable urban infrastructure coordination to support Urban-ITS' is still under drafting (as of March 2017). However, the main remit of the WG is the prioritised recommendations arising from the EC-funded Urban ITS pre-study, published in May 2016. A number of calls for experts to work on some of these recommendation priorities have already been published.

CIMEC link: Several CIMEC partners (Polis, Centaur Consulting, Albrecht Consult) were part of the urban ITS pre-study and some (SINTEF, Centaur Consulting and Albrecht Consult) are involved in the Working Group and may even be selected as experts for some of the topics.

What: ETSI ITS Committee

Why: ETSI, the European Telecommunications Standards Institute, produces globally-applicable standards for Information and Communications Technologies (ICT). The ITS committee is essentially focused on V2V and V2I communication and as such, its composition is OEM dominated. It is the group that is responsible for European standardisation of the C-ITS communication channel ITS G5.

CIMEC link: CIMEC partner Polis is cooperating with the chairperson of the ETSI ITS Group through their common membership of the Amsterdam Group as well as their common involvement in the H2020 C-ITS project CODECS.

3.2. European level – deployment

What: *Amsterdam Group* & constituent members (CEDR, C2C, ASECAP & Polis)

Why: The Amsterdam Group is a strategic alliance of stakeholders with the objective to achieve a more coordinated deployment of C-ITS in Europe. It involves the umbrella organisations Polis, CEDR (Association of motorway authorities), ASECAP (association of tolled motorways) and C2C-CC (industry association supporting V2V and V2I communications). The Amsterdam Group was the first such multi-stakeholder group concerned with C-ITS to emerge. Its mission is to facilitate dialogue among the stakeholder communities represented by the umbrella organisations.

CIMEC link: *One of the four umbrella organisations making up the Amsterdam Group is Polis, a CIMEC partner.*

What: *H2020 projects* (CODECS, C-the Difference, C-Mobile, among others)

Why: There are several H2020 projects (CODECS, C-the Difference, C-Mobile) that are dealing directly and indirectly with C-ITS in the urban environment. Some are ongoing and others are starting in 2017. These projects can benefit from many of the CIMEC findings, notably related to the use cases, the roadmap, the regional/national workshop networks and the City Pool. Outreach is currently underway among these projects, notably to secure their participation in the CIMEC final event and final City Pool workshop.

CIMEC link: *There are CIMEC partners involved in some of these projects, notably Bilbao in C-Mobile and Polis in CODECS. Polis member, the city of Helmond, is part of the C-the Difference project. At least one partner from each of these projects is on the programme of the CIMEC final conference.*

What: *CEF projects and other cross-border deployment initiatives* (C-ITS Corridor, Nordic Way, C-Roads, etc.)

Why: The current (2017) CEF projects dealing with C-ITS are motorway based, despite the fact that urban areas designated a TEN-T urban node are now eligible for CEF funding. Nonetheless, it is still worth reaching out to the CEF projects as typically new measures (technological or otherwise) that are implemented on motorways tend eventually to spill over onto urban roads. With regards to C-ITS, there are also numerous use cases that both types of road environment have in common, including floating car data.

CIMEC link: *Several CIMEC partners (Albrecht Consult and NPRA) are involved in CEF C-ITS projects.*

3.3. European level – networking

What	Why	CIMEC link
City networks: Polis, Eurocities, EMTA, CIVITAS	Ensuring onward awareness raising and general engagement with CIMEC’s main target group, city authorities, is crucial to ensure the urban C-ITS momentum is not lost. There are numerous European city networks around, including Polis (CIMEC partner), Eurocities and CIVITAS.	<i>Polis has good working relations with all other European city networks.</i>
National road authorities: CEDR	It is widely acknowledged that the needs of motorways differ from those of cities. However, solutions implemented on motorways ultimately spill over into cities	<i>NPRA is a member of CEDR. Other partners have good relations.</i>
Industry networks: C2C, Eucar, Clepa	Members of these industry networks are essentially driving forward C-ITS developments.	<i>Polis has good links with all organisations.</i>
Sector networks: UITP, EMTA, EPA	As a global network representing the public transport sector, UITP, is a key organisation to reach out to. Not least because some of the most interesting urban C-ITS use cases involve buses	<i>UITP is a part of the urban group of the C-ITS Deployment platform. Polis has good relations with all 3 bodies.</i>
Events: ETC, ECOMM, Polis conference, etc.	Transport events offer great opportunities to disseminate findings to a wide and mostly non-C-ITS audience.	<i>All partners will undertake this type of activity</i>

3.4. National level

What	Why	CIMEC link
Member States	Some Member States are funding local C-ITS pilot activities and can play a role in accelerating deployment, e.g., the Dutch infrastructure installation co-financing programme.	<i>This is a role that each partner will take forward in their respective country.</i>
Local government associations, e.g., NPRA, JBD, OCA, Deutsche Städtetag	Since local authorities are the focus of CIMEC, the role of national associations in disseminating the CIMEC findings and generally in raising awareness of C-ITS goes without saying.	<i>Several partners are active (or indeed steering) their local government association.</i>
Transport associations/bodies: UTMC, NVF (Nordic Road Association)	The role of transport associations, in particular those whose membership comprises local authorities, is important in keeping the CIMEC dialogue going.	<i>Several partners are active (or indeed steering) a transport association.</i>
National ITS bodies	National ITS bodies offer a hub for ITS dialogue and networking within the respective countries.	<i>Through individual CIMEC partners</i>

3.5. Local level

What	Why	CIMEC link
Local C-ITS projects	It would be a great achievement if some of the local C-ITS projects, such as those being implemented in the UK, Germany and Norway, are able to take on board the CIMEC findings in their projects	<i>Involvement of some local authorities running local projects in regional/national workshops & City Pool activities. Ongoing guidance provided by Albrecht through OCA and Centaur through UTMC.</i>

4. Exploitation by partner

Bilbao City Council

- Use the gained knowledge to tackle the following projects such as C-Mobile (H2020) or C-Roads project (CEF Transport).
- Share with surrounding cities and local, regional and if possible national administrations the main findings of CIMEC project.
- Utilise CIMEC roadmap as a basis to create a live document of use cases, C-ITS experiences, architecture and business models to share with MLC's members.
- Disseminate all findings through MLC ITS Euskadi website and regular newsletter.
- Distribute printed brochure (based on roadmap) at the next ITS Euskadi Congress.

Kassel

- To get in touch with International/European experiences (learning from others / offering own experiences to others)
- Working together with the other project partners to develop a non-academic road map, but a road map for C-ITS that is in step with actual practice (bringing in a lot of own needs and influence)
- Fostering a framework for C-ITS that is usable in many ways, like political discussions, discussions in the administration, finding the right solutions with suppliers
- Having a solution to get over the chicken and egg problem, that means having the basis for starting first C-ITS solutions in the city
- Getting involved different people and representatives of different authorities (like in the local workshops) to give them an idea about C-ITS, inspire them for C-ITS and find out ways to work together
- Continuing the development and dissemination of C-ITS in Germany, together with OCA and its working groups, also concerning standards

Reading Borough Council

- The experience from CIMEC was used to support the successful £250k + local contribution bid to DfT for C-ITS funding which will implement roadworks sensors, more advanced network management, bus priority with full integration of bus automatic vehicle location into the network management system, connected cycle technologies.
- Deliver an upgraded communications infrastructure to accommodate future C-ITS services and provide a low powered wide area network (LPWAN) to encourage internet of things developers to deliver C-ITS services.
- Investigate using part of the £1.7m smart city capital funding to extend bus cooperative systems to seat occupancy, wheelchair space etc.
- Disseminate to DfT and through publicity for Reading's DfT funded C-ITS project
- Disseminate via UTM channels
- Disseminate via ITS UK – Arrange presentation slot at Urban Interest Group

NPRA

- Presentation in national ITS conference
- Distribution to all participants, both local and regional
- Presentation at NPRA's ITS network forum
- Implement the roadmap into ITS processes
- Verify the roadmap by including the roadmap in the work within national ITS-pilots. NPRA together with Transport department are planning a lot of C-ITS pilots the next 5 years, verify the road map
- Test the roadmap in projects related to automated driving, these projects involve a lot of stakeholders and standardisation and will meet many of the barriers from the findings in CIMEC

Polis

- Disseminate all findings within C-ITS Deployment Platform and Amsterdam Group
- Disseminate all findings to related H2020 projects involving Polis (CODECS, MAVEN & Co-Exist)
- Disseminate all findings to relevant projects not involving Polis (C-The Difference, C-Mobile and other H2020 or CEF projects) with the support of the European Commission and INE
- Draw on all findings for presentations about (C)-ITS at various future international, European and national events
- Seek opportunities to continue the City Pool in newly starting projects such as C-the difference and C-Mobile, through (i) inviting these projects to join the final City Pool workshop on 19 May; (ii) bilateral contact with the respective project coordinator; and, (iii) discussion with the European Commission and INEA
- Continue the dialogue with Polis members (city and regional authorities) on C-ITS through the Polis thematic working group on Traffic Efficiency & Mobility
- Ensure the Member State authorities are aware of the main findings, focusing in particular on those Member States that are (co)financing C-ITS deployment and/or testing in cities, such as The Netherlands and the United Kingdom
- Distribute printed brochure (based on roadmap) at Polis conference in December 2017 as well as other events, including ECOMM (May 2017) and the CIVITAS Forum (September 2017), among others
- Disseminate all findings through the Polis website and the CIVITAS website
- Ongoing dialogue with the EC's DG MOVE on (i) how to accelerate C-ITS deployment in cities through the various instruments at the EC's disposal (H2020, Interreg, etc.); (ii) what additional activities the EC should support in order to address the barriers to deployment in cities

Albrecht Consult

- OCA Wiki → Dissemination
 - Publishing the translated CIMEC-key results (D 3.3: C-ITS roadmap) in the website of OCA
- OCA → Communication and exploitation
 - a. OCA-Anwenderkreis "Intelligent Verkehrssysteme (IVS)" → use the results of the two regional workshops as the basis for identifying the C-ITS use cases of OCA interest.
 - Note: The most supported use cases are around the traffic light controller which is one key element of any urban traffic management system. Examples of the C-ITS use cases are the following:
 - i. UC 7: Green Light for Police and Emergency Vehicles
 - ii. UC 8: Traffic Light Management
 - iii. UC 9: Green Light for Public Transport Vehicles
 - b. OCA-Anwenderkreis of relevance → Get the opportunity of the upcoming discussion regarding the D 2.5 deliverable in the C-ITS platform-urban WG (March 2017). This will be by:
 - a. Establishing a clear position within OCA is of great importance to ensure that the standardisation recommendations of D2.5 of OCA-common interest can get heard. A concrete example is a necessity of considering the OCIT standards as mature regional standards in the current standardisation activities which are: C-ITS CEN TC278 (WG 16), Urban ITS CEN TC278 (WG 17).
 - b. OCA-Anwenderkreis "IntelligentVerkehrssysteme (IVS)" → Develop an OCA C-ITS plan, as a guideline, based on the CIMEC-roadmap
 - c. The membership meeting of OCA (OCA-Mitgliederversammlung): bringing prospective outcome(s) of the discussion in the OCA-ITS user groups (see a, b, and c) to the upcoming annual membership meeting in 2018. This is to have a formal agreement of future agenda for OCA regarding C-ITS
- OCA-Akademie → Planning a session within the upcoming OCA-Academy to present important aspects of the CIMEC-roadmap, such as:
 - Chapter 3: The nature of C-ITS (C-ITS system, potential value, alternative architecture, etc.)
 - Chapter 7: Elements of the city business case
 - Chapter 8: Implementing city C-ITS infrastructure (from setting strategy to operation and maintenance)
 - Chapter 9: The wide context (e.g. legal development, funding, and implementation support)

Centaur Consulting

- Take findings on requirements, challenges, priorities and technology issues to C-ITS Deployment Platform Urban WG, and use in helping to forward its work
- Take findings to UK policymakers and advise on emerging C-ITS strategy and programmes
- Transfer findings (including key project reports) to relevant UK bodies such as the UTMC Development Group and the Transport Technology Forum
- Make use of findings, especially on realistic and high priority use cases, to relevant standardisation activities (especially CEN TC278 WG3 and WG17)
- Use learning to inform consultancy advice given to clients and other contacts (for example, within the public transport context)
- Use learning to inform input to research programmes, tender specifications, consultation responses, etc.
- Maintain dialogue with other CIMEC partners towards a coherent C-ITS deployment in Europe
- Maintain dialogue with wider contacts (EC, other specific H2020 projects, community groups, stakeholders within cities/companies/universities, etc.) in case of future C-ITS-related opportunities
- Use outputs to inform internal company thinking regarding next-level connectivity issues, in particular personal technologies, instrumented cities and automated vehicles

SINTEF

- Draw on methodology, findings and contacts/network of stakeholders in ongoing and future research activities financed by international or national bodies
- Use the new knowledge of the gap between cities' understanding of the possibilities and limitations in C-ITS technology and the technology suppliers' understanding of the cities' needs to support the deployment of C-ITS in projects and activities
- Use the new knowledge of cities' requirements to support projects and activities working with urban/inter-urban road traffic challenges
- Propose future project activities based on the realistic and city-relevant C-ITS use cases
- Dissemination of findings and documents on SINTEF web site
- Dissemination of findings in national magazines (GEMINI, Samferdsel) and in national and regional fora and events (ITS Norway, NVF, ENIT)
- Dissemination and discussion of findings in standardisation activities (WG17 Urban ITS in TC278 ITS)
- Dissemination and discussion of findings with national, regional and local authorities (NTP/National Transport Plan, Storbysamarbeidet and Byutredningene/Network of city and road authorities)
- Dissemination and discussion of findings with national, regional and local commercial stakeholders (NHO/Confederation of Norwegian Enterprise and Local chambers of commerce)