



Deployment is underway!

15 September 2015
Scandic Hotel
Roskilde, Denmark



Agenda

- **History – why AG has been initiated**
- **Structure and work undertaken**
- **The C-ITS Road Map**
- **Current activities – open issues**

Remember ...

- **A few years ago**
 - Mandate on Standardisation has been issued
 - Field operational tests have provided first results
 - Car industry was already well organised
 - Road operators have touched C-ITS only sporadically
 - Cities and regions have started to follow
- **There was a risk that C-ITS might not exploit its full potential**
- **The stakeholders have been following each others activities**

Amsterdam Group

- Deployment of C-ITS
- ...as a cooperation platform of core C-ITS deployment committed stakeholders
- CEDR, ASECAP, POLIS, C2C-CC
- formed in 2011...
- ...with the goal to overcome mutual dependency...
- ...to achieve and manage synchronised action in C-ITS.



Amsterdam Group



Amsterdam Group basics

- Amsterdam Group (AG) builds on results and achievements produced in the different initiatives
- If one partners has a proposal (e.g. priority Day One Use Cases), AG will discuss it and if agreed accept it as a joint AG approach
- Limited resources of the Amsterdam Group to allocate work there however AG gets active if nobody else is taking action

The AG roadmap on C-ITS

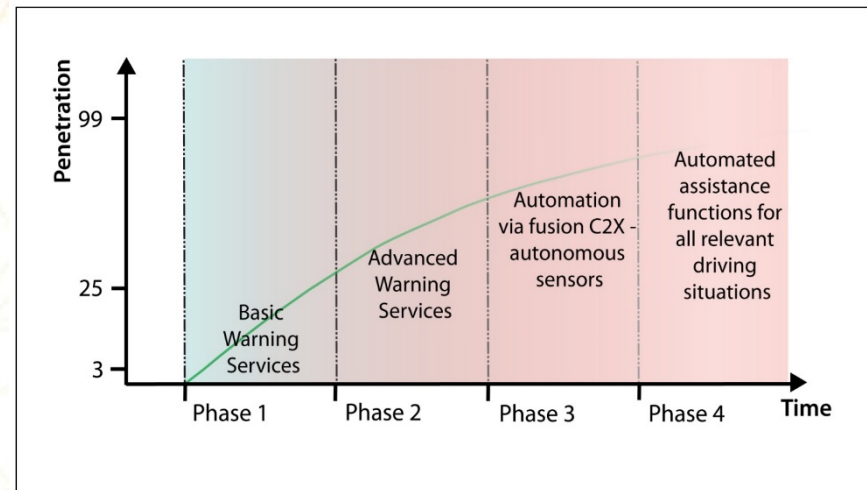
- **A Roadmap for the introduction of C-ITS**
 - agreed between automotive industry and infrastructure organisations
 - on initial deployment of Cooperative ITS (C-ITS) in Europe from 2015 onwards
 - that aims at practical recommendations for AG members
 - on AG level as a guiding star for C-ITS deployment of members in corridors

Roadmap boundaries

- Respect requirements of different road authorities, OEMs and cities
 - their experience and state of play in ITS,
 - their contributions to the related activities in C-ITS,
 - their readiness to take the risk for day 1 roll out,
 - their business model view in the domain,
 - their framework in terms of contractual obligation
- AG cannot prescribe, but can give recommendations
- ASECAP: There is a understanding, that if you do something in C-ITS, they will try to follow the AG roadmap

Roadmap key messages

- Initial deployment with simple and non complex services,
- clear user benefits, supported by a business model,
- even with limited penetration and limited hot spot implementation
- Evolution instead of revolution
- Technically interoperable C-ITS based on agreed standards
- Hybrid communication concept
- Supported by retrofit and aftermarket equipment
- Market driven deployment preferred



In the meantime ...

- First set of C-ITS standards has been finalised
- C-ITS platform of EC has been established
- Corridor projects and initiatives have started / worked on
- Mutual understanding among French corridor, CZ initiative and DE/NL/AT corridor that
 - interoperability is the overall aim when implementing C-ITS
 - the AG is the platform to address the relevant open issues

To be solved before deployment starts

- AG has identified 10 topics / open issues
- The leading entity has been identified
- AG is taking the lead only where needed
- AG is contributing via its members to solve the open issues

Open issues – Working Groups

1. Security
2. System Specification Profiling
3. Consistency of Legal Framework
4. Radio Spectrum & Frequencies
5. Deployment / roll-out, day-one
6. Roadmap Beyond Day 1
7. Conformance Assessment
8. Hybrid Communication Concept
9. Backend Services
10. Use-Cases, Applications

Open issues – Working Groups

- | | |
|-----------------------------------|----------------|
| 1. Security | C-ITS platform |
| 2. System Specification Profiling | CODECS |
| 3. Consistency of Legal Framework | C-ITS platform |
| 4. Radio Spectrum & Frequencies | AG, CODECS |
| 5. Deployment / roll-out, day-one | CODECS |
| 6. Roadmap Beyond Day 1 | AG |
| 7. Conformance Assessment | AG |
| 8. Hybrid Communication Concept | AG |
| 9. Backend Services | AG |
| 10. Use-Cases, Applications | AG |

1. Security (DE)

- It should be verified if the approach of C2C CC is applicable as well for Road Administrations which will run the road side installations for C-ITS. A harmonisation of the approach is the aim of this WG.
- EC C-ITS Deployment Platform WG5
 - WG members from AT, D, F & NL
 - Seconded by national experts (BSI)
 - Developing a technical & policy approach
- EIP+ Activity 4.1 - C-ITS
 - D, ESP, F, FIN, IT, NL, RO, SWE, UK represented
 - Awareness raised, proposal presented

2. System Specification Profiling (C2C CC, DE)

- Based on the standards developed in ETSI & CEN, a system specification profiling has been finalised for in-car C-ITS systems.
- This work group should analyse the in-car C-ITS system specification and white papers and define a road side C-ITS system specification document.
- Some proposals have been published by DE or AT
- CODECS with support of corridor initiatives and upcoming C-ITS projects will harmonise the approach

3. Consistency of Legal Framework (AT)

- C-ITS can be operated only under an adequate legal framework on national and EU level. The work in this respect requires the analysis of e.g. privacy and other laws impacting the introduction of Day One use cases.
- EC is leading via its C-ITS platform
 - Working Group 3: Focusing on liability issues
 - Working Group 4: focusing on privacy issues and data ownership and management of the data
 - Working Group 5: Security issues
- National studies are undertaken

4. Radio Spectrum & Frequencies (NL)

- The basis for C-ITS installations is the availability of radio frequencies. However also other applications (RLAN) seek for the usage of the C-ITS frequencies. This work group should monitor and give input to the work already ongoing related to frequency allocation and sharing.
- Further issue is to analyse and find a solution on the 5,8 GHz / 5,9 GHz co-existence.
- Joint approach of AG members in the RLAN activity
- Facilitation in the solution finding on 5,8 / 5,9 GHz issue
- CODECS will publish a report on this activity

5. Deployment Day One (CZ)

- The corridor initiatives related to C-ITS have different use cases as their priority for Day One. This work group should identify and give an overview on the different day one use cases and identify similarities and try to harmonise them. The aim should be a C-ITS service catalogue for Europe.
- CODECS will publish a report on this activity

6. Roadmap Beyond Day One (NL)

- The Amsterdam Group has identified a set of Day One Applications. This work group should come up with considerations what could be Use Cases for Day Two and further on.

7. Conformance Assessment (AT)

- The C2C CC is currently working on conformance assessment procedures for C-ITS.
- Road side infrastructures for C-ITS require an even broader approach covering the full end-to-end service (from the generation of the messages in the traffic control centre, to sending them out via road side units).
- This work group should develop, together and based on the work performed in the C2C CC an end-to-end testing approach for road side C-ITS.

7. Conformance Assessment

- What type of “cross testing” different corridors should have
 - It is certainly important for OEMs to move vehicles from one corridor to another to ensure I2V interoperability
 - Should test equipment be exchanged as well (e.g. V-ITS-S message generator/ logging facilities)?
 - Can / should infrastructure components (in particular C-ITS-S/R-ITS-S) be exchanged with other corridors
 - What are agreed test cases / test procedures?
- Activities are taking place in implementation projects, it seems that a clear policy framework is missing

8. Hybrid Communication Concept (NL)

- Next to short range communication between vehicles and road infrastructure, also complementary technology (cellular systems, broadcasting systems) could / will play a role in C-ITS. This work group should take action to make these approaches converge.
- AG has conducted a study with ERTICO
- Road Operators / Authorities are interested in hybrid comm.
- AT has issued a Convergence concept for G5 with cellular
- DE is investigating in the usage of TPEG for C-ITS next to G5

9. Backend Services (AT)

- The interconnection between the traffic control centres, the Central C-ITS systems and road side systems gives a big potential for harmonisation between the different corridors. This WG should identify the current situation in the corridor countries and provide a proposal for harmonisation steps.
- AT has published their approach on the topic
- Germany has conducted public workshops on this topic
- AT, NL, DE and FR are interested in this WG

10. Use Cases (AT, DE, NL, NO)

- The Amsterdam Group members have agreed on a set of specific use cases which are supported by OEMs and road operators. The aim of this working group is to define detailed functional specifications of these specific use cases and identify harmonisation / standardisation needs.
- Current use cases in the scope are:
 - RWW (Road Works Warning)
 - PVD (Probe Vehicle Data)
 - IVS (In-Vehicle Signage)
 - SPAT/MAP (Signal, Phase and Timing of Traffic Lights)

Are C-ITS standards sufficient for deployment?

1. C-ITS deployment has to be based on standards (ETSI and CEN)
 2. Standards specify technical features of components needed as part of the C-ITS system as well as the organisational and procedural environment needed for their application
 3. Just quoting standards is not enough! Concrete use cases require additional specification, including feature selection, configuration, framework conditions for application, etc.
- AG is working on this „White Papers“
 - Basis for Conformance Tests

Current status of the „White Papers“?

- Road Works Warning
 1. An initial *white paper* has meanwhile been replaced by a message *set & triggering conditions* document, which has undergone several review / improvement cycles
 2. The respective DENM standards have been updated
 3. The service is mature for implementation in Day 1
- Probe Vehicle Data
 1. An initial *white paper* has been created and iterated many times, focussing mainly on the functional description of the use case
 2. A real PVD service appears unrealistic for Day 1 because of pending clarification regarding e.g. privacy
 3. The Probe Data service on Day 1 will consist of R-ITS-S receiving and processing CAM and DENM messages

Current status of the „White Papers“?

- In-Vehicle Information
 1. No initial IVI *white paper* has been created so far since a lot of clarification was needed – especially about the relationship between IVI and IVS (In-vehicle signage)
 2. Appropriate standards were developed by AG members in CEN
 3. It has to be analysed to which extend IVI can be implemented in Day 1

Current status of the „White Papers“?

- Signal Phase and Timing
 1. Local Authorities are not as tightly organised as Motorway Operators – hence, the *initial white* paper document was more raising fundamental questions than specifying systems
 2. Standardisation is progressing by industry contribution – a dedicated standard may be in time for Day 1
 3. SPaT/MAP are technically specified and may be deployed in spots



Thank you for your attention!

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