



C-ITS – THE EUROPEAN INFRASTRUCTURE IS PREPARED TO SUPPORT CONNECTED VEHICLES

SIP-adus Workshop 2021



Co-financed by the Connecting Europe
Facility of the European Union

www.c-roads.eu | [@cRoadsPlatform](https://twitter.com/cRoadsPlatform)



2016: Eight founding Member States

2017: Enlargement to 16 States

2019: Further enlargement to 18 States

Associated Countries

- Croatia
- Israel
- New Zealand
- Queensland/Australia
- Russia
- Switzerland
- Turkey



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<50 European cities

Starting with C-ITS deployment in urban areas

Short range C-ITS

20,000 km of European road sections are equipped with C-ITS equipment

Long range C-ITS

100,000 km of European roads in total are covered by C-ITS services

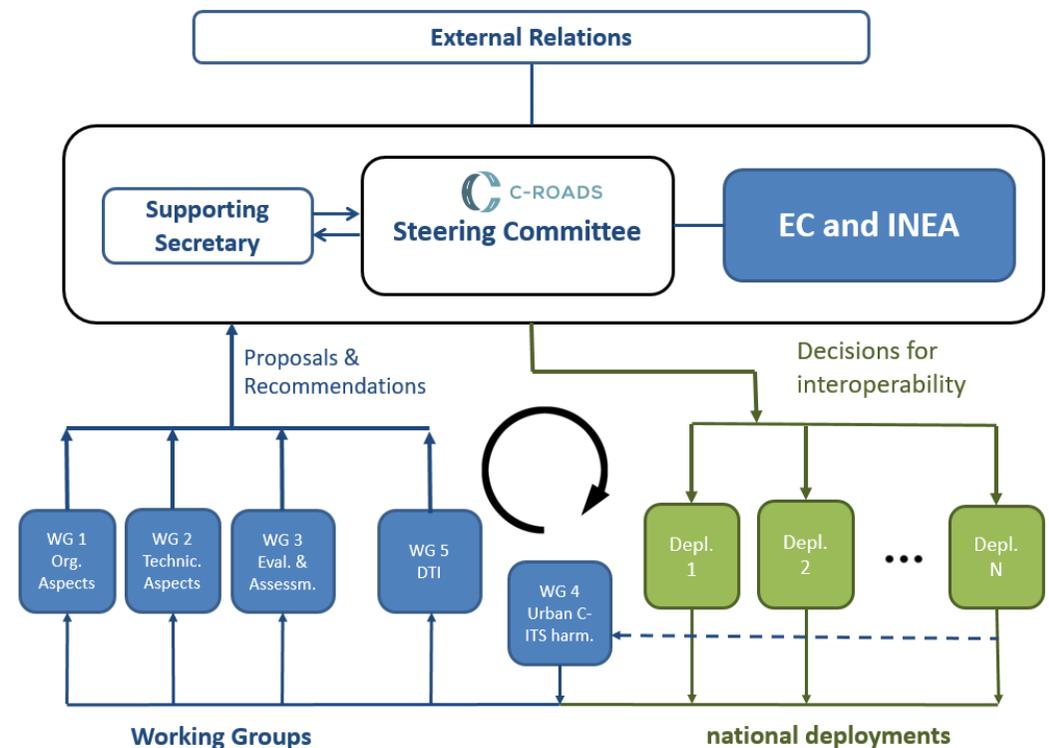


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The aim of the C-Roads Platform

Starting in 2016 the aim was to

- 🕒 link all C-ITS deployments across Europe
- 🕒 develop, share and publish common **technical specifications** (including the common communication profiles) – available at www.c-roads.eu
- 🕒 plan intensive **cross-testing** to verify interoperability
- 🕒 develop system tests based on the common communication profiles by focusing on **hybrid communication mix**, which is a combination of ETSI ITS-G5 and operational cellular networks.



The aim of the C-Roads Platform

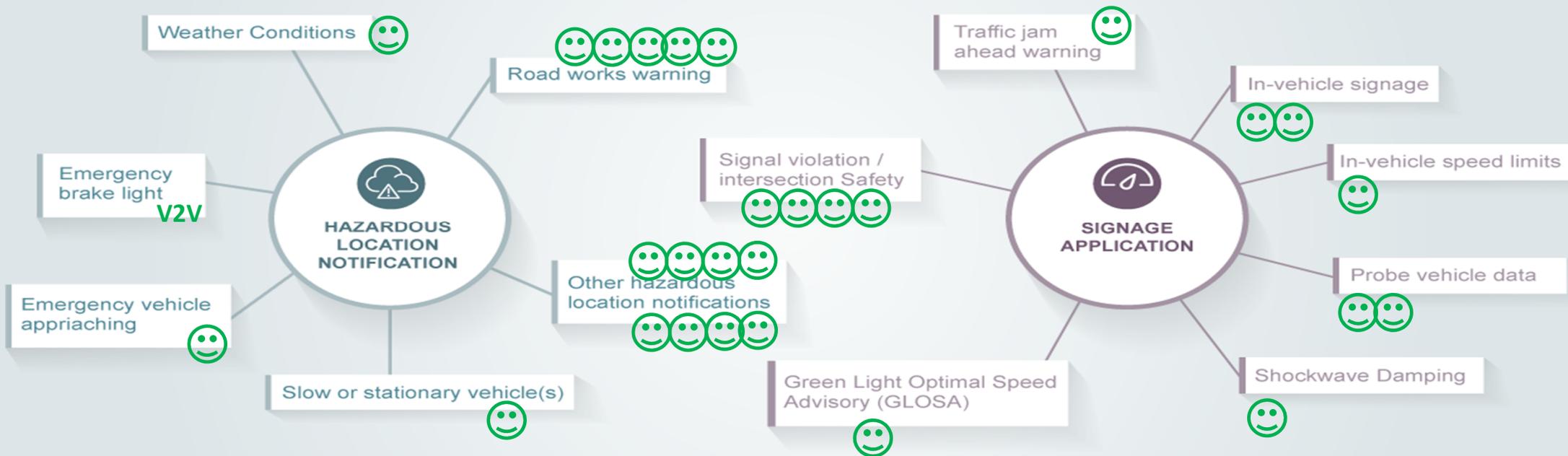
Today we can state:

- Ⓒ First C-ITS services are up and running
- Ⓒ We are exchanging data between road operators and vehicles
- Ⓒ The ground for making Cooperative, Connected and Automated Driving reality is paved

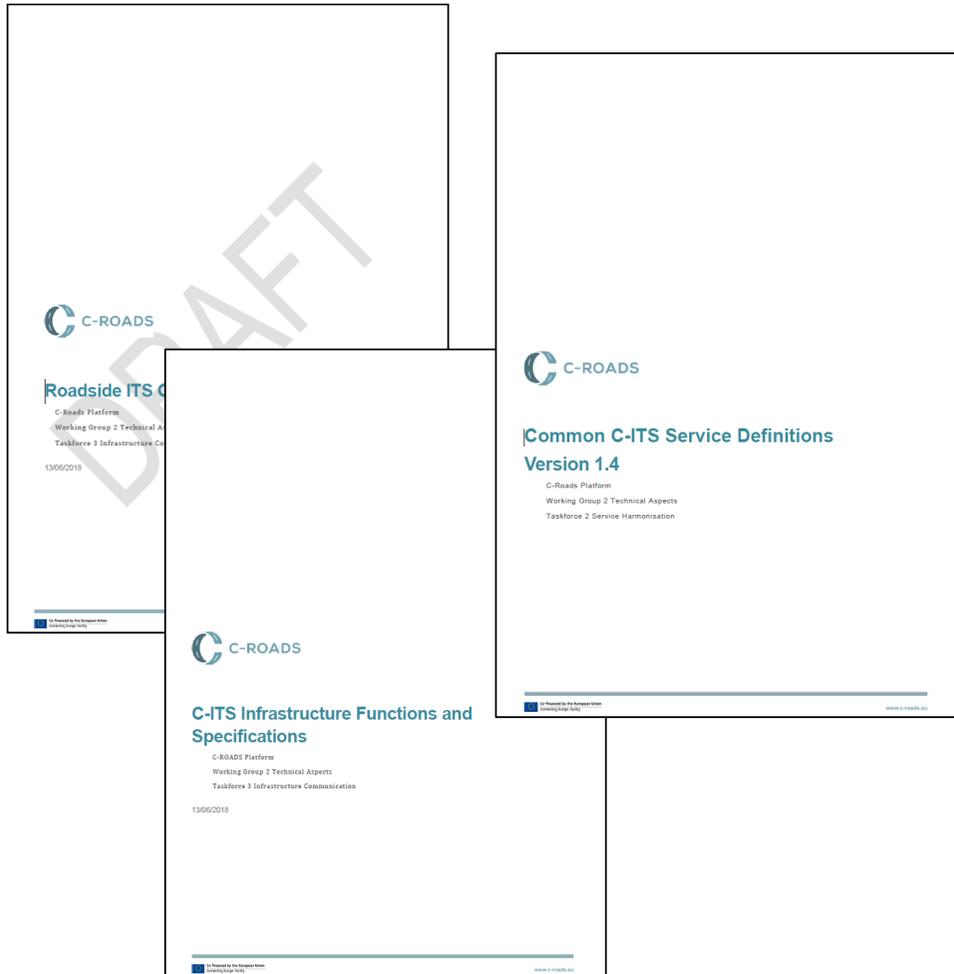
Working together

- Ⓒ A Steering Committee, chaired by France
- Ⓒ A General Secretariat, chaired by Austria
- Ⓒ WG1 : Organisational aspects, chaired by the Czech Republic
- Ⓒ WG2 : Technical aspects, chaired by France
 - Ⓒ TF1 : Security, chaired by Germany
 - Ⓒ TF2 : Functional specs, chaired by the Netherlands
 - Ⓒ TF3 : Technical specs, chaired by Austria
 - Ⓒ TF4 : Hybrid, chaired by Sweden
 - Ⓒ TF5 : Cross-site testing and validation, chaired by France
- Ⓒ WG3 : Evaluation, chaired by Italy
- Ⓒ WG4 : Urban C-ITS, chaired by Portugal
- Ⓒ WG5 : DTI, chaired by UK

„Day 1 C-ITS Services“ – Published specifications

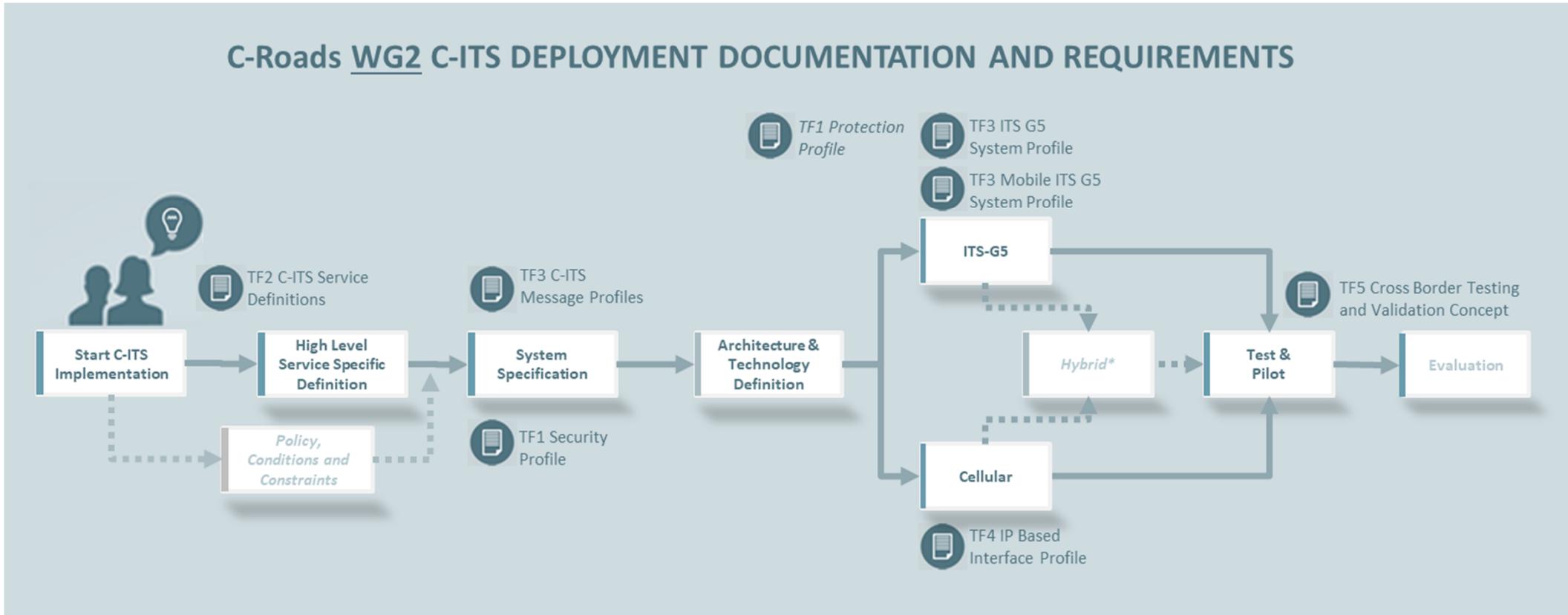


Publication of the Communication Profile



- C Rel. 1.0 published on 14th of September 2017
- C Rel. 1.1 published on 23rd of April 2018
- C Rel. 1.2 published on 9th of July 2018
- C Rel. 1.3 published on 23rd of October 2018 (harmonised with the Car 2 Car Communication Consortium)
- C Rel. 1.4 published on 31st of January 2019
- C Rel. 1.5 published on 8th of July 2019 – including the specification for interoperability of backend hybrid C-ITS communication
- C Rel. 1.6 published on 6th of March 2020
- C Rel. 1.7 published on 7th of August 2020 – includes the “Cross-Border Testing and Validation Concept”
- C Rel. 1.8 published on 15th of March 2021
- C Rel. 2.0 published on 30th of September 2021 – the first full hybrid specification
- C Available via www.c-roads.eu

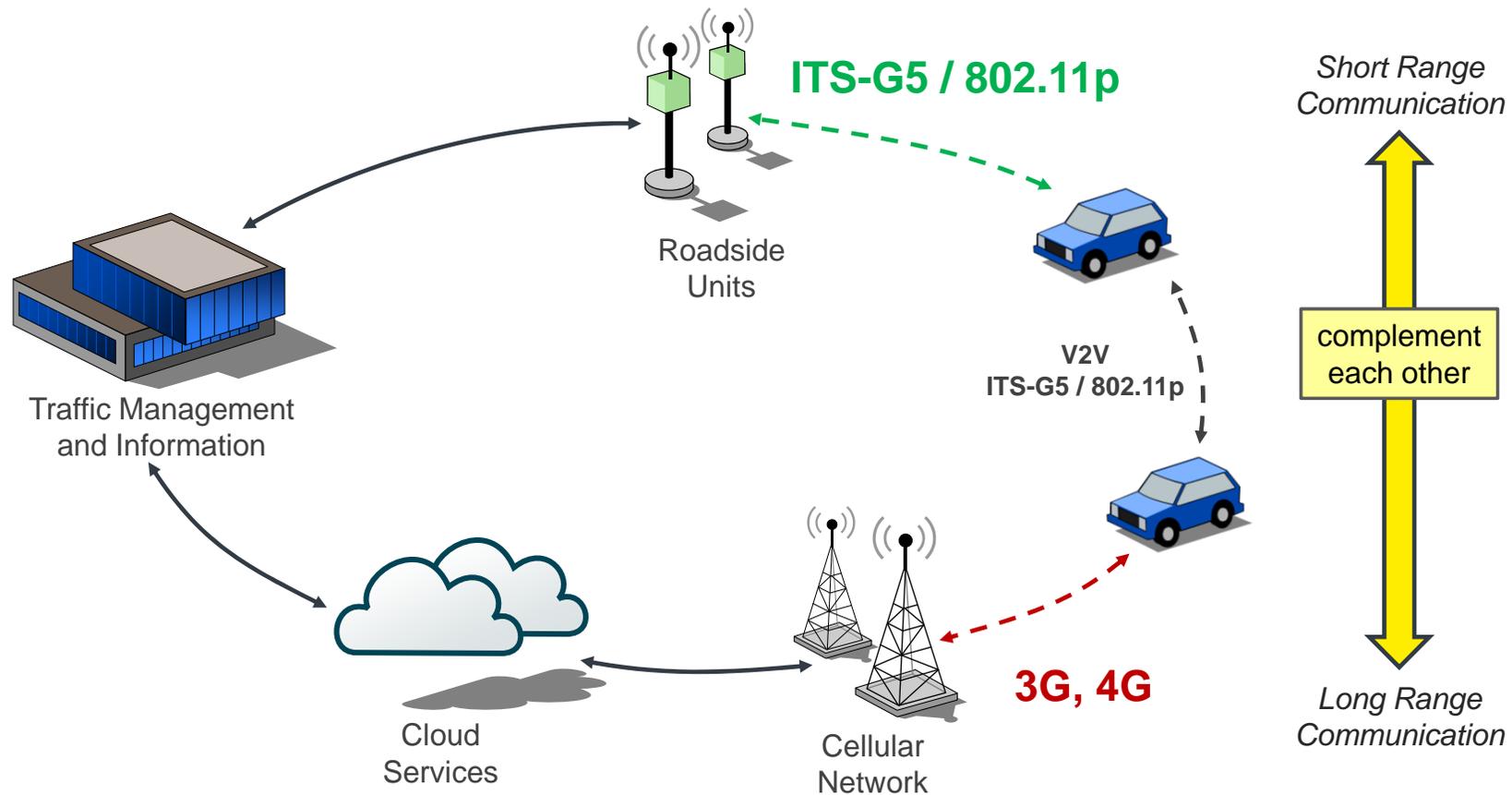
C-Roads: Links between specification documents



Overview document inserted to guide through the common specifications

C-ITS based on a hybrid communication mix...

Short and long range communication complement each other:



C-ITS based on a hybrid communication mix...

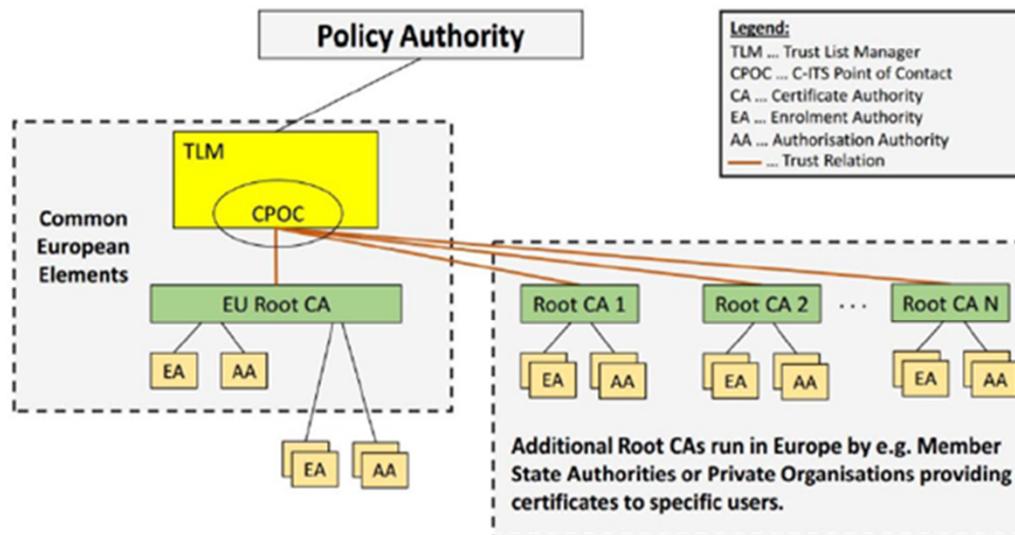
Short and long range communication complement each other:



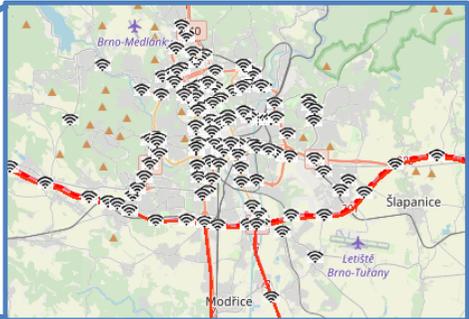
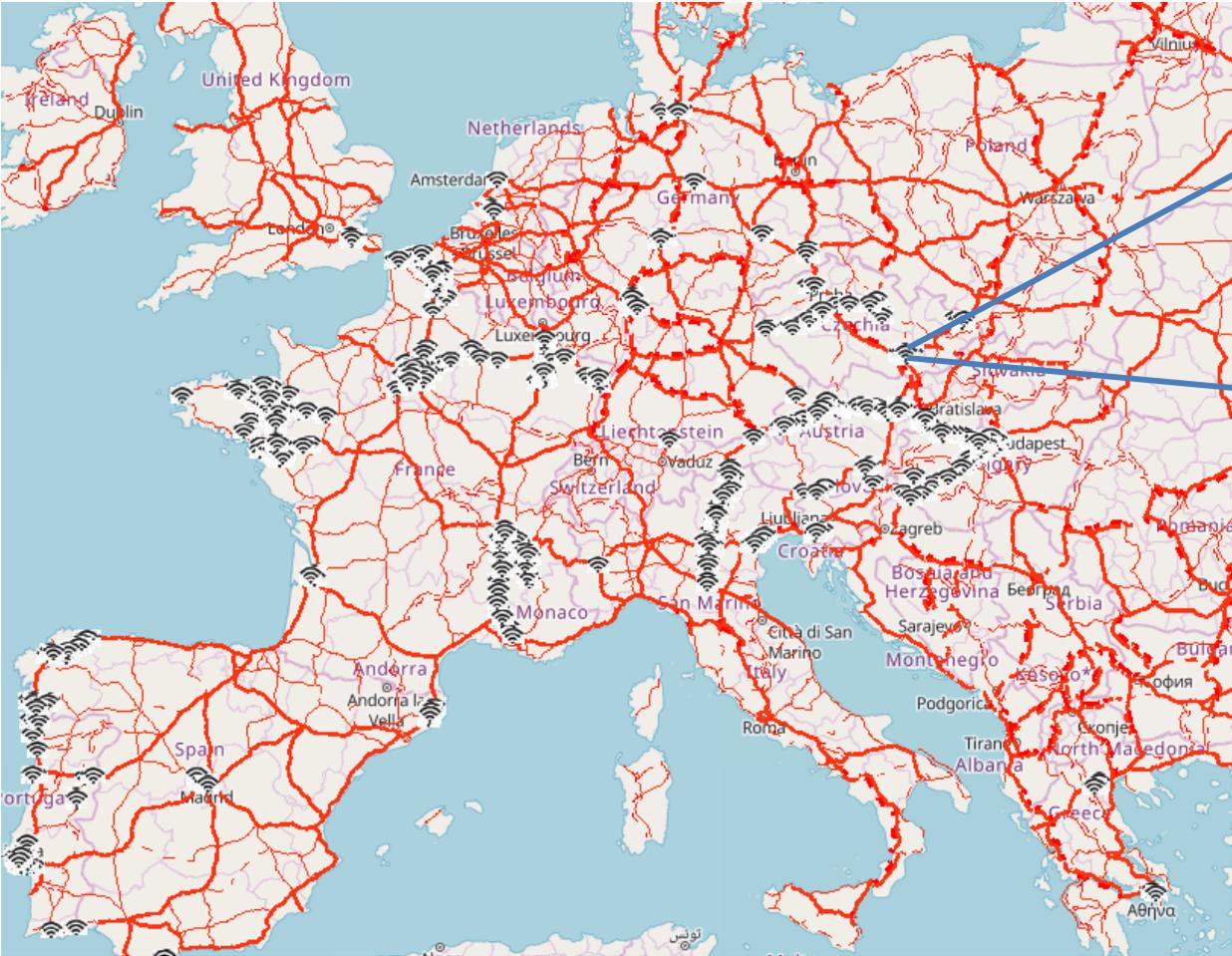
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...and includes security as core element.

- with one single trust domain
- security elements for message transmission between C-ITS stations based on a PKI – Public Key Infrastructure
- Linking to the EU CCMS - EU C-ITS security credential management system



Current deployment status of ITS-G5 road side units



Conclusion

- Ⓒ Even C-ITS services are deployed along the high level road network TODAY, we see an even higher potential in urban areas
 - Ⓒ C-ITS services are more than supporting drivers of individual cars
 - Ⓒ C-ITS services help public authorities to inform travellers about current active travel regulations (e.g. Urban vehicle access restrictions / UVARs)
 - Ⓒ Inclusion of public transport vehicles and emergency services are seen as high priority
- C-ITS is marking a new area of mobility
- Have a look at the current activities within single countries here: https://www.c-roads.eu/fileadmin/user_upload/media/Dokumente/C-Roads_Brochure_2021_final_2.pdf

C-Roads Outlook



- Ⓒ Continuous procurement all across Europe
- Ⓒ Enlargement of the C-Roads Platform with new Member States
- Ⓒ Inclusion of further City Authorities and linkage with urban platforms
- Ⓒ Definition and inclusion of future C-ITS services supporting
 - Ⓒ Urban C-ITS services, e.g. public transport, emergency services, vulnerable road users, parking
 - Ⓒ automated functions in vehicles
- Ⓒ Strengthening existing cooperation (C2C CC, ASECAP ...)



THANK YOU!

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