

# Workshop on the Deployment Methodology of 5G for CAM on Cross-Border Corridors

Work package 6 – Deliverable 6.4

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**5GMOBIX**



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# Plan and preliminary report on EU policies and regulations recommendations (I)

- As 5G for CCAM Enablers within 5GMobix the “Plan and preliminary report on EU policies and regulations recommendations” presents a complete cycle of requirements gathering, analysis, target group and framework identification, and finally a synthesis exercise.
- This has resulted in a first step in a comprehensive overall view on the major issues that are of concern to the relevant stakeholders in deployment of 5G CCAM solutions.

# Plan and preliminary report on EU policies and regulations recommendations (II)

As a result, the following short-term policy and regulatory needs were identified:

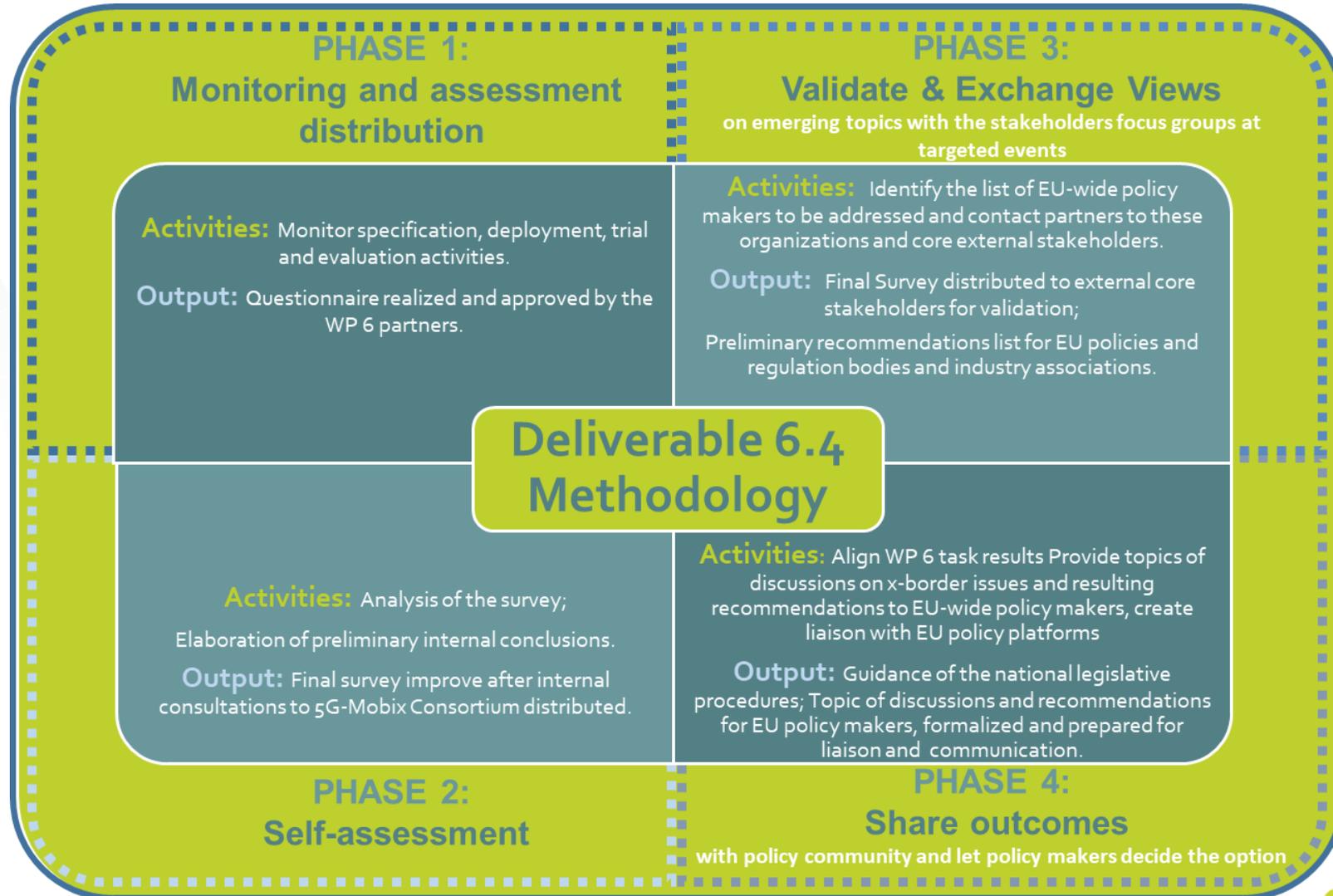
- A common European understanding on necessary digital infrastructure quality/coverage for Level 3;
- Joint approach between telecom and vehicle industries to support CAD;
- Common European understanding on safety & security validation (when are the systems safe enough);
- Coordinated European and Member State programs to support global competitiveness;
- Adaption of road traffic rules in Member States;
- Align General Data Protection Regulation within the European member states to ensure privacy.

# Plan and preliminary report on EU policies and regulations recommendations (III)

To achieve that, it is crucial that existing and future policies are implemented in order to:

- Align roadmaps and priorities for a coordinated 5G deployment across all EU Member states;
- Make provisional spectrum bands available for 5G ;
- Promote early deployment in major urban areas and along major transport paths;
- Unite leading actors in working towards the promotion of global standards;
- National and EU strategies, available national data on 5G deployment including coverage and quality;
- Execution of spectrum assignments by public authorities and 5G public funding for network deployment and R&I;
- Reduce the cost and increase the speed of deployment of high capacity networks, by removing avoidable administrative hurdles;
- Common message sets/protocols dedicated to police interactions shall be standardized in international level;
- Roaming, and the obvious implication for Cross Border 5G CCAM applications and scenarios;
- Open Internet, and the implications for Cross Border CCAM solutions providers.

# Plan and Methodology



# 5G Strategic Deployment Agenda for Connected & Automated Mobility

- Deployment of 5G should follow an evolutionary path: In order to account for future market needs and technical developments 5G should co-exist and be interoperable with other networks such as 4G LTE;
- Service Continuity across borders and actors: As many CCAM services (e.g. guidance, auto-overtake etc.) can be considered “mission critical”, there needs to be reliable, uninterrupted connectivity and coverage, with service continuity across borders and actors.
- End-to-end cybersecurity: A high level of end-to-end cybersecurity is necessary to ensure trust in CCAM services, but it also needs to be held to high performance and reliability criteria.
- 5G for CAM needs to be a Multi-service/Multi-application platform with standardised interfaces and data formats.
- Coordination among public & private actors in V2X for the deployment of 5G infrastructure is necessary. Starting from major corridors and highways, the benefits of 5G for CAM can be demonstrated. Coverage can then be extended to secondary roads and urban areas.
- Public authorities and administrations in charge of roads should collaborate for the deployment of connectivity along major corridors.
- Cooperative planning & cost optimisation is necessary to deliver improved networks in a cost-effective way.
- Digital transformation for industry verticals must be accelerated .

# Current Policy State-of-Play (I)

- The EU's strategy is developed and translated into policies and initiatives by the European Commission. One of these EC's priorities is "A European fit for the digital age". This European approach to digital transformation is based on three pillars:
  - Technology that works for the people.
  - A fair and competitive digital economy.
  - An open, democratic and sustainable society.
- EC is collaborating to achieve the EU's ambitious vision for connected and automated mobility in a Digital Single Market. The evolution in digital technologies, is quickly changing vehicles, so policies related to digital technology, including cybersecurity, radio communications, data use, liability, privacy, etc. are becoming more relevant for the transport sector. The EC is supporting the deployment of CAM with:
  - Developing policies, initiatives and roadmaps.
  - Developing European standards.
  - Co-funding research and innovation projects and pilots.
  - Introducing European legislation.

# Current Policy State-of-Play (II)

- 5G for Europe Action Plan
- European 5G Observatory
- 5G Cybersecurity toolbox
- Europe on the Move: Third Mobility Package
- Cross-border corridors for Connected and Automated Mobility
  - Europe's 5G Corridors
  - Initiatives for 5G cross-border corridors large-scale testing
- 5G Strategic Deployment Agenda for Connected & Automated Mobility
- 5G Infrastructure Public Private Partnership (5G PPP)
- Connecting Europe Facility (CEF2) Digital
- C-ITS Platform
- Other initiatives
  - European Automotive – Telecom Alliance (EATA)
  - 5G Automotive Alliance
  - C-ROADS Platform
  - CAR2CAR Consortium

# Questionnaire Results (I)

- Task 6.4, in cooperation with T6.1-T6.3 created a first Stakeholder survey, provided in the form of a questionnaire, to gather inputs on the stakeholder motivations, status of cooperation with other stakeholders.
- The online questionnaire was set up by Fraunhofer IAO, using the online survey tool "LimeSurvey". The questionnaire has been disseminated within the 5G-MOBIX consortium in September 2020.
- During October 2020, the questionnaire was also disseminated externally:
  - On the 5G-MOBIX website and on social media.
  - With the sister projects in ICT-18/ICT-53
  - With 5G-PPP, 5G-IA and 5GAA.
  - Through the <http://connectedautomateddriving.eu> news and on their social media

**5G MOBIX**

**5G-MOBIX: 5G for cooperative & connected automated MOBility on X-border corridors**

Automotive Industry

How would you rate the status of technical maturity in the following areas?

	1 - least mature	2	3	4	5 - most mature
Advanced, Automated Driving	<input type="radio"/>				
Quality of Service	<input type="radio"/>				
Remote Driving	<input type="radio"/>				
Platooning	<input type="radio"/>				
Continuity of Vehicle-to-Everything (V2X) connectivity	<input type="radio"/>				
Cybersecurity, Data protection	<input type="radio"/>				
Driving safety	<input type="radio"/>				
Issue Traceability & Accountability	<input type="radio"/>				
Service continuity	<input type="radio"/>				
Automated Fleet Management	<input type="radio"/>				
Device Synchronisation	<input type="radio"/>				
Other (please indicate below)	<input type="radio"/>				

How would you rate the technical priority of the following areas?

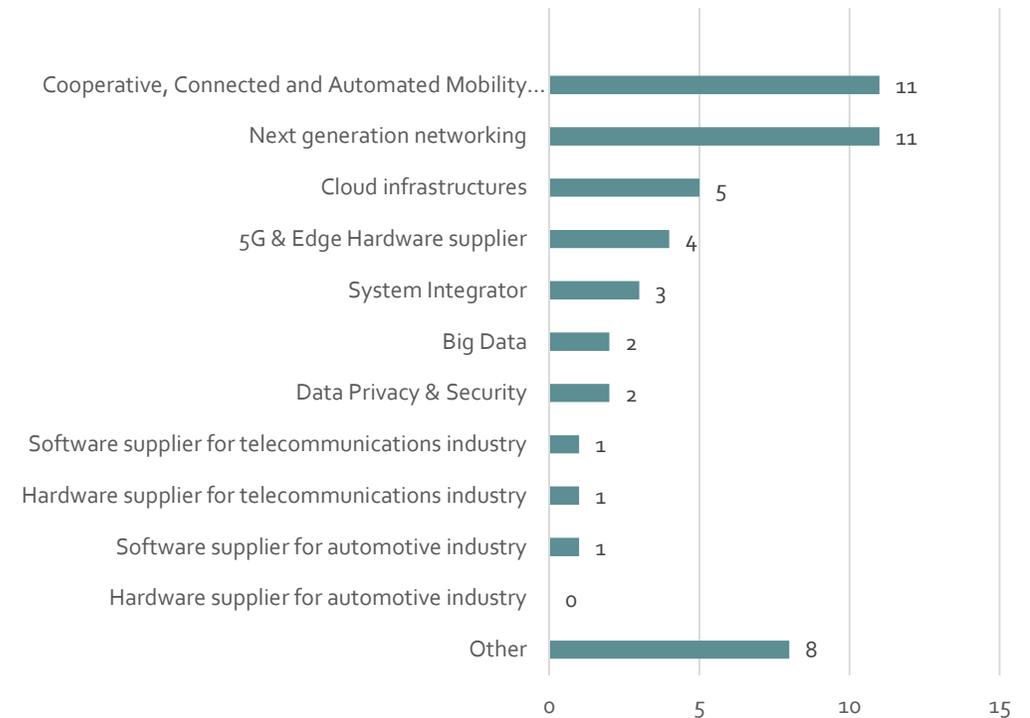
	1 - least mature	2	3	4	5 - most mature
Advanced, Automated Driving	<input type="radio"/>				
Quality of Service	<input type="radio"/>				
Remote Driving	<input type="radio"/>				

Automotive industry questions

# Questionnaire Results (II)

- For a statistical a minimum of 100 participants should have been reached.
  - Only a few responses of stakeholders can be used to derive recommendations for the policy makers and regulatory entities.
  - Future activities will thus need to focus more on policy makers and national regulators.
- The first question addressed the main research area of the academia/R&D experts.
- The main areas are “Cooperative, Connected and Automated Mobility (CCAM) Application developer” and “Next generation Network”.
- Due to the lack of response from the stakeholders second round of data collection from our CBCs

Main Research Area



# 4 Questions for stakeholders

Due to the risks of bias the questionnaire have been updated with 4 crucial questions, targeting the industry and technological stakeholders, to overcome the high number of academia answers and avoid possible issues.

The results will be merged with the data collected through the survey.

- What is your implication in automated driving and the view on 5G in your company or research institutes?
- Which are the most challenging issues related to 5G for CCAM in your perspective and which are the one related to your work or research activity? Which of them are X-Border issues?
- How would you prioritize these challenges and what can be done from the policymakers and regulatory entities to overcome these challenges?
- How can 5GMobix influence the regulatory entities and policymakers to overcome these issues?

# Preliminary results (I)

## Recommendations from the stakeholders - ICT sector

The main outcomes were synthesised as results in the recommendation section, with the main purpose of closing the gap between the involved industries and policy makers and regulators.

From ICT sector:

- more guidance should be provided by higher level authorities on how data should be stored, transferred, shared etc;
- Governments should push for regulating stakeholders on the type of data they provide across platforms, set requirements regarding data quality;

# Preliminary results (II)

## Recommendations from the stakeholders – **Other sectors**

### From road operators:

- Higher levels of automation, that have road infrastructure requirements such as surface marking or telecommunications support, should require validation to be active;
- The communication in V2V and V2I must safeguard all aspects of privacy and secure data handling, making available only the relevant data to the involved parties;
- Higher level functions of 5G CAM like overtaking or lane merging, in mass transit or high-performance roads, may require arbitration between the involved parties depending on the implementation model;

### From car industry:

- Compliance with at least FCC and CE marking regulations. This should guarantee that the vehicle is able to operate legally in most of the countries;
- Regulations allowing Platooning applications in hard-border crossings to be switched to remote driving by an operator or a cloud, because at hard-border settings platooning should be dissolved for security controls;
- Regulations and homologation processes in different countries should be unified;
- To increase the speed of the security control process in border settings, additional sensors to monitor the goods on vehicles shall be mandatory;
- Common message sets/protocols dedicated to police interactions shall be standardized in international level for suspicious events.

Thank you!



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