European Commission

C-ITS Plenary

Wendnesday, 14 June 2017 - Brussels - 14h - 17h

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Mobility and Transport

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DRAFT AGENDA		
14.00	Opening and welcome	Claire Depré
14.10	Revision and approval of minutes of previous plenary meeting	Claire Depré
14.15	Progress towards the 2019 target: • Overview of CEF Call 2016 (INEA) • C-ROADS steering committee • Industry first-movers • Delegated Regulation	Claire Depré
14.40	Presentation of achievements of each of the WGs and future work until Sept 2017, open floor for feedback/questions from platform's members (First batch of WGs)	WG's Chairs
15.30	**Coffee Break**	
16.00	Presentation of achievements of each of the WGs and future work until Sept 2017, open floor for feedback/questions from platform's members (Second batch of WG's reports)	WG's Chairs
17.10	Future work of the C-ITS Platform: • Finalising phase II in September 2017 • Next steps for the C-ITS Platform	Claire Depré
17.30	**AOB & Closure**	

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WG Security

C-ITS Plenary Meeting – DG MOVE

14 June 2017

Gerhard Menzel

C-ITS Strategy COM (2016) 766
Ch 3.2 C-ITS Security:

- The Commission will work together with all relevant stakeholders in the C-ITS domain to steer the development of **a common security and certificate policy** for deployment and operation of C-ITS in Europe. It will publish guidance regarding the European C-ITS security and certificate policy in 2017.

- **All C-ITS deployment initiatives** should participate in the development of this common security policy by committing from the beginning to implement future-proof C-ITS services in Europe

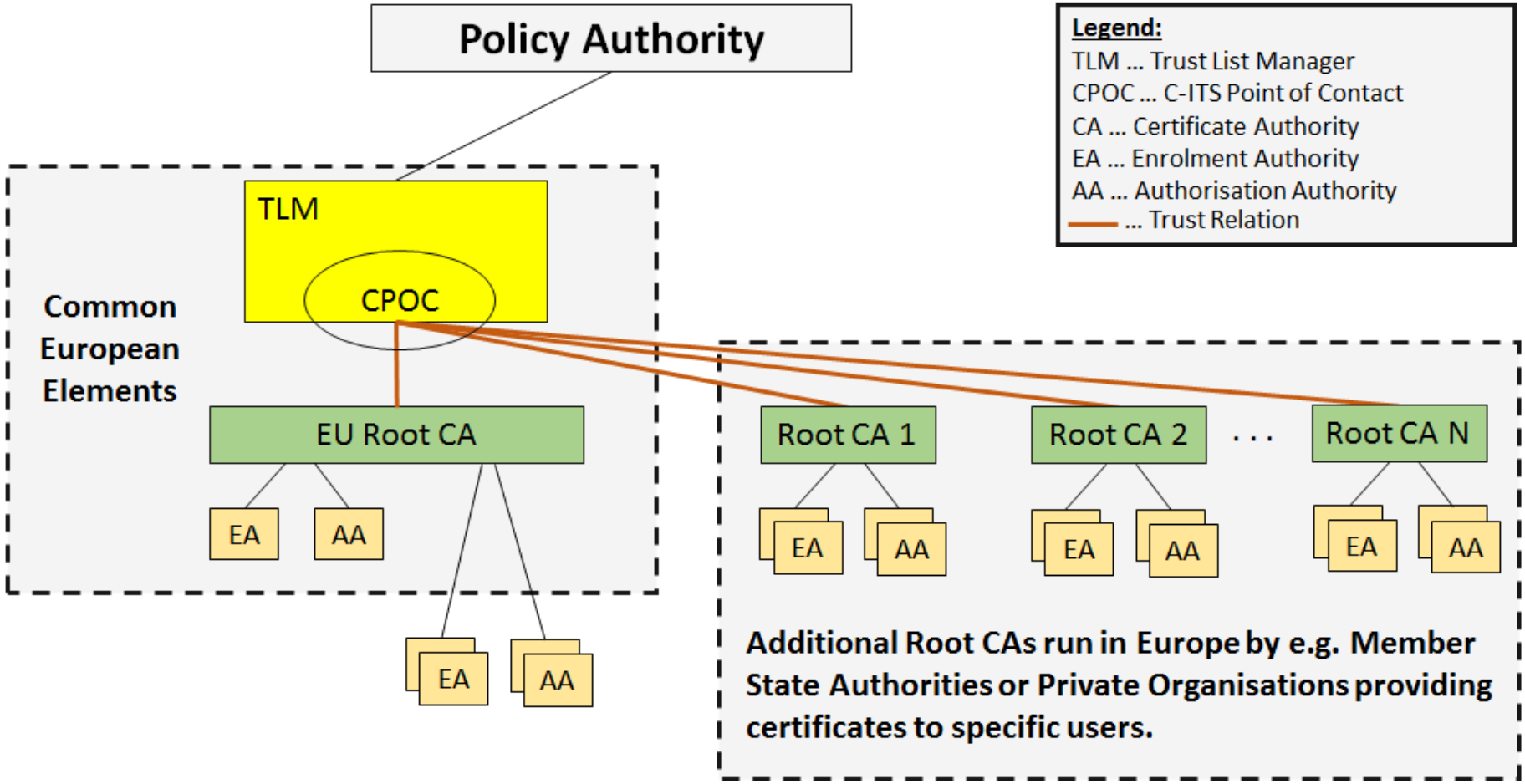
- The Commission will analyse the roles and responsibilities of the European C-ITS Trust Model, and whether some operational functions and governance roles should be taken over by the **Commission** (as, for instance, in the case of the Smart Tachograph).

Progress report / Outcomes

- 9 WG meetings + Editing Team Meetings chaired by DG MOVE & DG JRC, countless conference calls to work on common certificate & security policy since last plenary meeting December 2016
- Broad and inclusive outreach and stakeholder involvement – several comment resolution meetings to agree on compromises
- **Milestone 17 May 2017**: Contents of Certificate Policy adopted by WG Security & minor editoral updates agreed yesterday 13 June WG Meeting → **First Release is ready!**

Certificate Policy – Release 1

C-ITS Security
EU Trust Model



Certificate Policy – Release 1

- Document is by definition a "living" document – the certificate policy will be updated in **future releases.**
- Document will be published on DG MOVE Website after this plenary meeting – Link will be circulated to you for broad dissemination
- **New functional Mailbox** setup as contact point:
  - MOVE-JRC-C-ITS-POLICY-AUTHORITY@ec.europa.eu

WG Security

Open items / Next steps

- Resolve "yellow" parts in Certificate Policy towards next Release 2, including link to privacy discussions (authorisation ticket detailed values), standardisation activities, protection profile/compliance assessment
- Focus of work now shifted to second document: **Security Policy & Governance Framework for deployment and operation of European C-ITS**

EU Pilot Phase:

- EC currently evaluating possibility of a 4 year fully financed pilot operation of an **European C-ITS Credential Management System** ("PKI") implemented and operated by the European Commission
  - Funds of CEF Public Support Action (Work Programme 2016)
  - Provision of common European elements: Full setup of CPOC, TLM and EU Root CA to support initial C-ITS deployment in Europe as defined in Release 1 of the certificate policy
  - Time Horizon Pilot Phase: 2018-2021

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Questions?

WG Compliance assessment

C-ITS Plenary Meeting – DG MOVE

14 June 2017

Gilles Carabin

Progress Report / outcomes

- 11 meetings until today + several telcos
- Report: guidance for the EU compliance assessment process
- Scope limited initially to requirements relating to existing standards, without precluding additional requirements as soon as standards are made available.
- Requirements are also based on the profiling of set of standards.
- Minimum requirements for conformance and performance.
- Compliance assessment methodology described, including specific methodology for roadside and vehicle C-ITS stations.

Progress Report / outcomes

Emerging technologies

- **Cloud based solutions:**

All protocols currently used for these solutions are proprietary protocols, characteristics of these solutions are not public and compliance assessment of these solutions is excluded from this document.

The communication from C-ITS station is typically based on cellular technology. The compliance of the communication link can therefore generally be assumed to be covered by the GCF certification scheme.

- **LTE V2X using cellular**

For the two modes of LTE V2X that uses a cellular uplink to a server that is responsible for the distribution of the messages, it is assumed that for the communication part the RED combined with the GCF certification scheme would be sufficient to assure compliance of the communication.

- **LTE sidelink**

At this point in time, a first assumption would be that the main difference in terms of compliance for ETSI G5 and LTE sidelink would be covered by the requirement associated with the RED and all compliance assessment criteria above the access layer can be common.

Progress Report / outcomes

- The report looks at existing and emerging technologies. Technology agnostic compliance assessment, but standards need to be validated for each new technology.
- The report looks also at requirements and compliance assessment methodology for:
  - End to end service tests/Quality of service assessment
  - C-ITS system scalability
- The report describes the detailed Roles and responsibilities of the different actors, as well as the general compliance assessment process.

Progress Report / outcomes

3 main roles

- **C-ITS Governing Body**

Defines the requirements to the C-ITS Station, that fulfil the policy needs. The C-ITS governing body defines the operational and security requirements, which drive the definition of the compliance assessment test and procedures, which are coordinated by the Compliance assessment governing body, and defines rules (including conflict resolution process) for the resolution of issues detected by the C-ITS Supervision body. It is also its responsibility to maintain consistency with any other certification schemes.

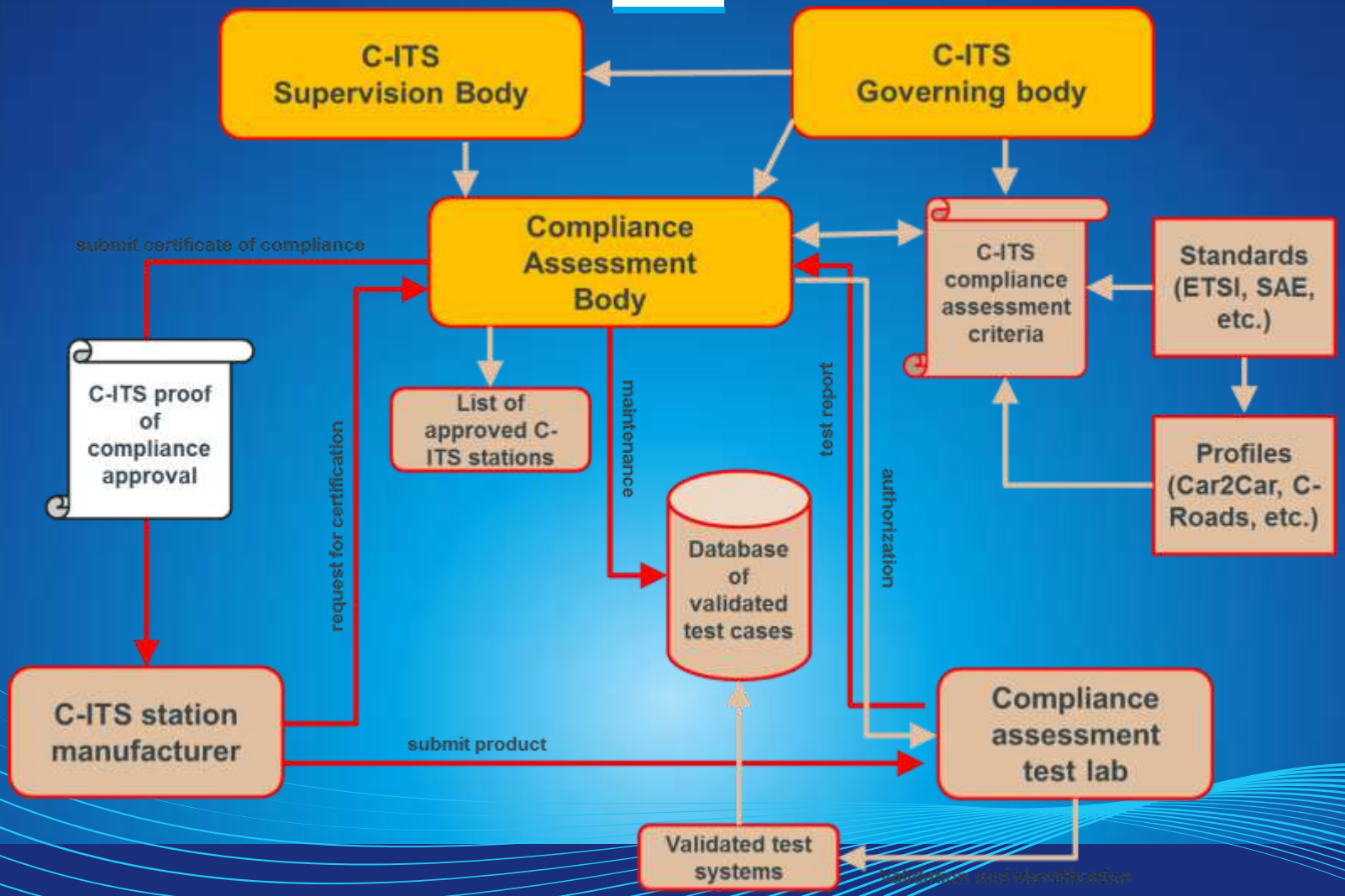
- **Compliance Assessment body**

The central operational body in the compliance assessment process, it oversees the overall process, and manages the day to day Compliance Assessment operation. It defines the governing rules and procedures for the compliance assessment tests and procedures. It issues the C-ITS proof of compliance approval. Maintains the list of approved C-ITS stations.

- **C-ITS Supervision Body**

Is responsible for the detection of problems in the deployment and operational phase, which can be reported to the C-ITS Governing body and to Compliance assessment body for further analysis and action, on the basis of rules defined by the C-ITS Governing body. This requires a hierarchical organisation to be able to solve issues at appropriate level and/or report them to the appropriate level.

Overview of the compliance assessment process



Draft Conclusions and recommendations

- The scope of the C-ITS Compliance Assessment process being described is this report is only considering the C-ITS Station level including isolated C-ITS Stations for the after sales and retrofit, and C-ITS Station being embedded in vehicles and RSU.

- However, this does not mean that C-ITS components and systems will not be validated, but their compliance assessment is out of the scope of the proposed organisation and is left to the private industries and Member States.

- It is important to note that the described CA process/organisation does not remove the need for the stakeholders to perform end-to-end and system testing.

Draft Conclusions and recommendations

- Need to set up an appropriate common EU legal and technical framework to implement the proposed roles and compliance assessment requirements and process, which is summarised on the figure on the overview of the compliance assessment process.

- Main roles are governance (C-ITS governing body), operation (Compliance assessment body) and supervision (C-ITS supervision body).

- Considering the challenging time schedule of setting up a final organisation as described by the Compliance assessment Working Group, progressive development of this organisation should allow for deployment in a relatively short timeframe (2019).

- Moreover, the proposed organisation shall have the capability allowing the introduction of new services and/or new technologies in a backward compatibility manner with already deployed services.

- Need to maintain consistency with any other certification frameworks.

- Further work is needed to elaborate a common EU framework to cover the roles defined by all WGs (compliance assessment, privacy/data protection, security).

Open items / Next steps

- Report (quasi) finalised – to be approved in July at WG level

WG on Data Protection and Privacy

C-ITS Plenary Meeting – DG MOVE

14 June 2017

Paivi Elina Wood and Vincent Mahieu

Progress Report / outcomes

- During the phase II the working group has convened 10 times
- The conclusions from phase I report has been examined in the light of the General Data Protection Regulation;
- EDPS, DG JUST and Technology subgroup of Art 29 have been involved in the work;
- Working group has produced a the document " Processing personal data in the context of C-ITS" to Article 29 Working party for a formal opinion
- Deepening the analysis of the suitable legal basis;

Legal Base

Issues concerning the legal base:

- Application of GDPR as of from May 2018;
- During the process the Working Group screened out the different possibilities, deviating from the outcome of phase I;
- **Consent:** In the phase one it was concluded that informed consent would constitute a suitable legal basis. In the light of the GDPR due to the open broadcast nature of the data it seems that achieving consent that it would be fully free & informed would not be possible to achieve;

Preliminary feedback from Art. 29

- Performance of a contract could be the legal basis in the short term and public interest in the long term (after a EU wide legal instrument is enacted);
- Issues of more technical nature in relation to the document;
- Code of Conduct has been discussed within the group, in that respect there are many open question related to the governance structure and timing;

Next steps

- Final document needs to submitted to Art. 29 in the beginning of July;
- Preliminary feedback from Art. 29 received, Art. 29 will issue an extended letter in September;
- Continue exploring the possibilities to remove the obstacles from using consent as legal base;
- Finalise the analysis against the new General Data Protection Rules;
- Privacy by default and by design;
- Continue to liason with EPDS, Art 29 and DG JUST

WG Physical & Digital Road Infrastructure

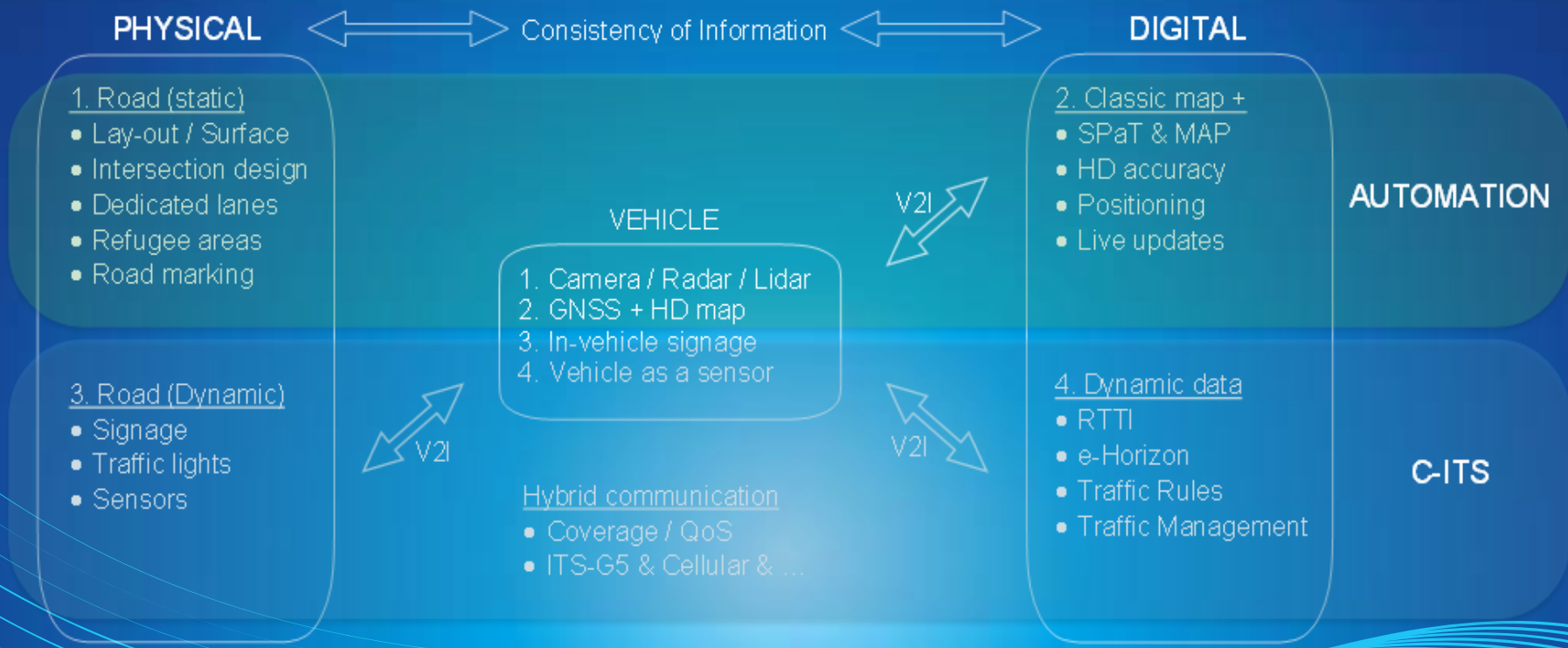
C-ITS Plenary Meeting – DG MOVE

14 June 2017

Geert Van Der Linden

European Commission

Overview



Starting Point

- Is it needed for Support or a Prerequisite for Automated Vehicles?
    1. YES = how can we make progress faced with slow infrastructure changes and budgetary restrictions?
    2. NO = why are we all in this working group?
- C-ITS Services / Automation Use Cases ⇒ what is the Context?
    1. Identify concrete problems, issues or needs
    2. Look for solutions where Infrastructure could support

Progress Report / outcomes

- 10 meetings until today
- All issues were grouped in 4 categories:

1) Support environment (e.g. Traffic rules)
2) Event handling (e.g. construction sites)
3) Cooperative driving (e.g. complex intersections)
4) Digital infrastructure (e.g. consistency)

Progress Report / outcomes

- Looking for common elements the following areas were identified for recommendations:

  1) Connectivity for automation

  2) Roads for automation

  3) Position support

  4) Handling complex situations

  5) Consistency physical / Digital

Progress Report / outcomes

- **1) Connectivity for automation**
  - We set out to find synergies between C-ITS and automation but this conclusion came from the issues identified
  - Support from the infrastructure (particularly in the form of data) needs to be communicated
  - automated vehicles will (need to) be connected and cooperative
  - hybrid approach from Phase I still fully valid

Progress Report / outcomes

- **2) Roads for automation**

  - Road operators don't "approve" use or level of automation
  - Road operators cannot be liable for (incorrect) use of automation

BUT

  - We should jointly define road characteristics relevant for automation (e.g reference points for position support are present, no ongoing roadworks, maintenance vehicles equipped with C-ITS)
  - This information will add predictability on the situation ahead and improve reliable and timely handover to human drivers

Progress Report / outcomes

➢ 3) Position support

- All automated road vehicles will need (lane) accurate positioning
- Improved GNSS (and/or beacons) can provide absolute positioning
- Cameras, radars and lidars will help the vehicle "see" and position itself but
- These systems need reference points for fast matching with sensory input
- In an Urban environment buildings could likely provide these reference points
- Extra urban will likely require infrastructure support for reference points

Progress Report / outcomes

- **4) Handling complex situations**
  - Complexity from road lay-out and challenging intersections
  - Complexity from cross-traffic (including VRU & other modes)
  - Infrastructure support through SPAT/MAP
  - C-ITS evolving from awareness (I share where I am) to perception data (I share what I see)

Progress Report / outcomes

➢ 5) Consistency physical / Digital

- Physical infrastructure will increasingly be complemented by digital
- To avoid confusing and potentially dangerous situations consistency is vital
- To be investigated for which data legal implications are carried over (e.g. broadcast of speed limits)
- Increased collaboration between public & private needed to update digital infrastructure

WG Enhanced Traffic Management

C-ITS Plenary Meeting – DG MOVE

14 June 2017

Pedro Barradas

Progress Report / outcomes

- 10 meetings until today
- Discussion on the scope and objectives
  - Balanced Score Card Methodology for high level approach provided a framework for moving from the Vision to the Project Pipeline
  - Operationalization of Cooperative Traffic Management: the use case Cooperative Incident Management provided the practical approach to build up the new envisioned services.
- Draft Report circulated for contributions up until July

Objectives and scope: WG EnTM

Long term Vision - Cooperative Traffic Management

A Connected traffic system in which all elements act collaboratively, providing the best achievable balance between the individual's needs and the collective's best interest, as for safety, flow efficiency and emission reduction.

1st Stage Objectives

Enhancing Road Traffic Management capabilities, looking into opportunities to improve network performance, while making use of connectivity and automation to improve the full extension of the 'end to end' road user experience.

Cooperation needs engagement

'end to end' Communication

To ensure that needed Traffic Management measures are available and disseminated in real-time, trough dynamic dialogue between all the involved actors, so that mixed traffic may be aware and comply with those measures.

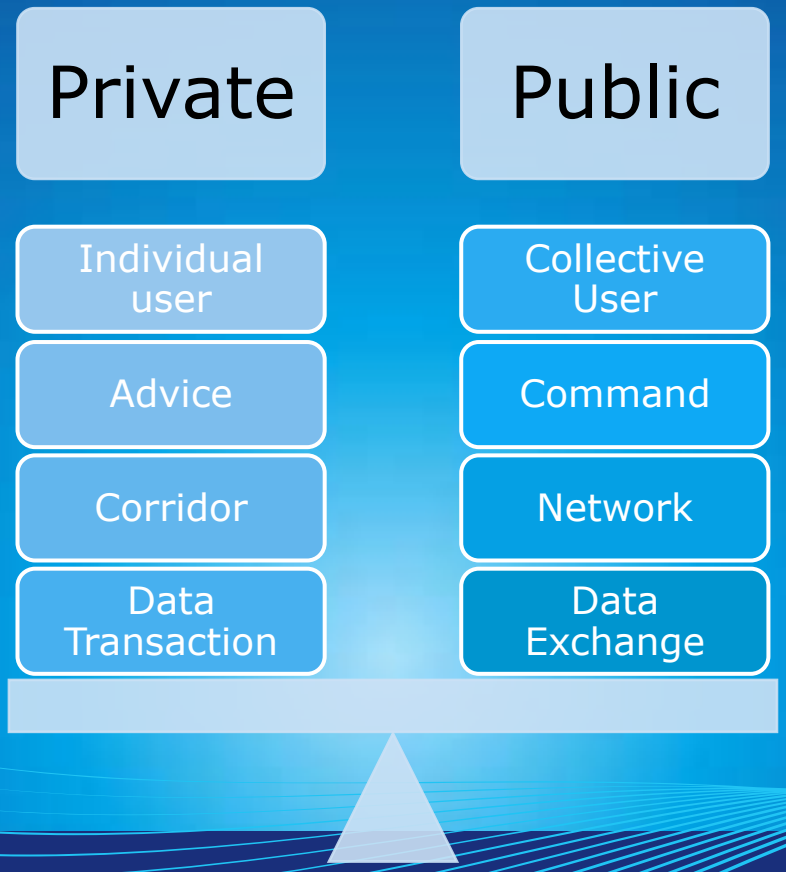
'end to end' Collaboration

To promote the right combination of efforts from all, either from the public or private sectors, acting as 'cooperative components' to provide safe and efficient traffic management services.

'end to end' Performance

To ensure the proper use of Public and Private resources or competences in order to provide the best achieveble quality for the provision of, either, collective binding information or individual recommendations and advice.

Cooperation needs balance and win-win



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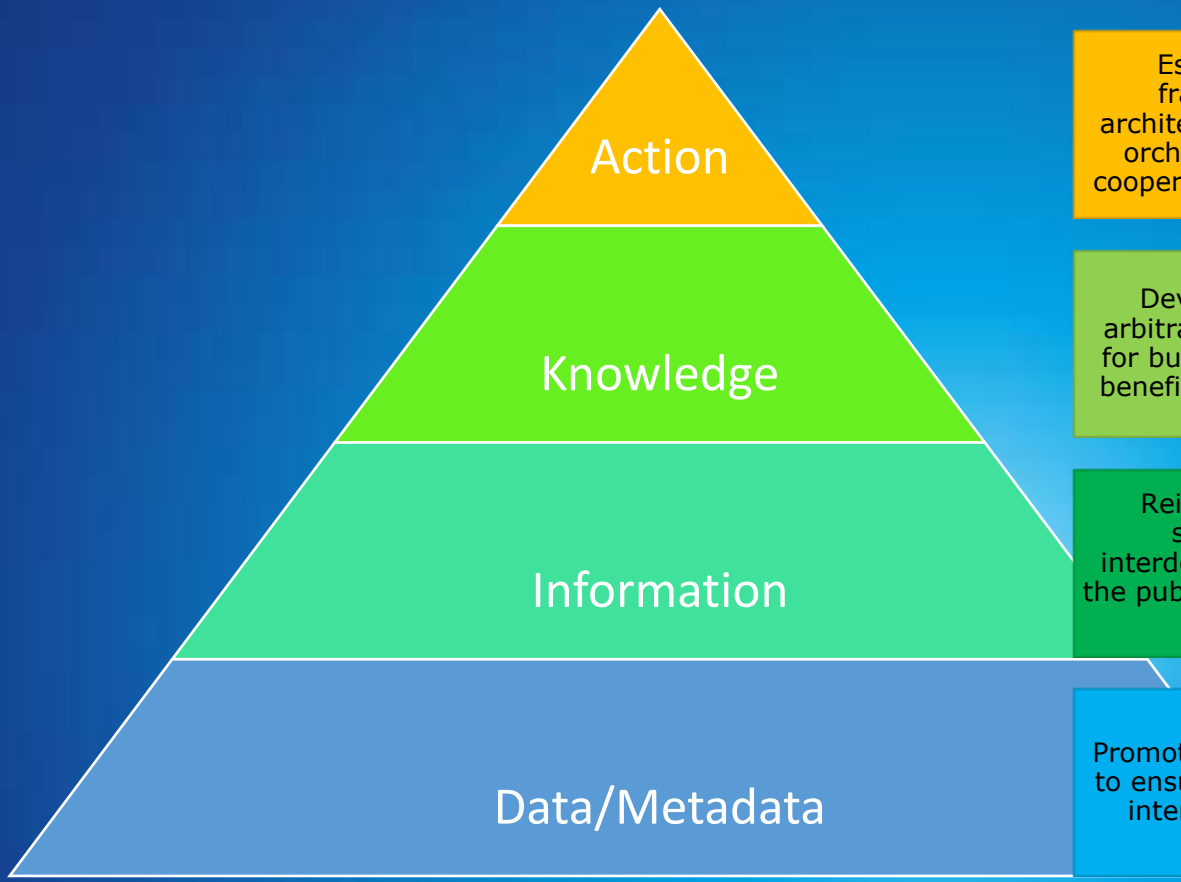
Framework



Process Improvement	Learning and Growing
Establish a framework architecture for the orchestration of cooperative services	Develop a TMP's and TCP's into a standardized Technology - 'ITIL'
Develop 'new arbitration models' for building mutual benefit agreements	Develop the roll-out of decentralized cooperative applications
Reinforce the strategic interdependence of the public and private sectors	Ensure data transactions across multi value chains and dissemination channels
Promote Coopetition to ensure horizontal interoperability	Reinforce standardization for interoperability, consistency and synchronization

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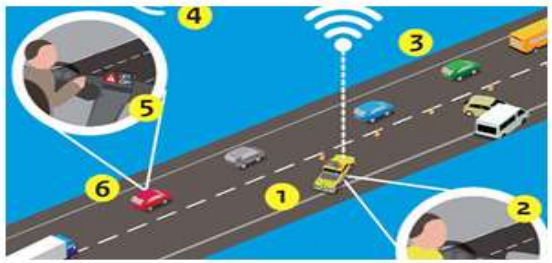
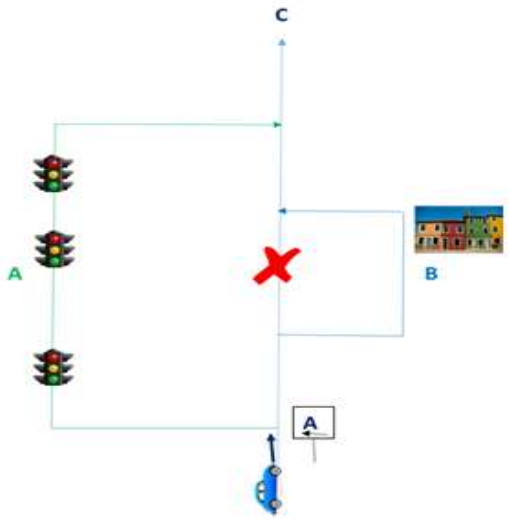
	Learning and Growing Research – H2020	Process improvement Large scale Deploymen - CEF
Actions	**Develop a TMP's and TCP's into a standardized Technology - 'ITIL'**	**Establish a framework architecture for the orchestration of cooperative services**
	Promote the development of a 'off-the-shelf' digital library for TMP's and TCP's, to be available via the National Access Points, following a fully interoperable, flexible and modular approach to be assembled following a building block logic, activated and triggered under specific conditions and with prearranged agreements between all the involved actors, or deployed 'on the fly', if the dynamic traffic conditions so demand.	Align Public and Private sectors roadmaps to jointly address governance, organizational, functional or procedural issues in order to unlock the full potential of the cooperative market place, to provide collective binding information or individual recommendations to the road user, under well-orchestrated services to where and when required.
Knowledge	**Develop the roll-out of decentralized cooperative applications**	**Develop 'new arbitration models' for building mutual benefit agreements**
	Develop multi-branding Cooperative incident management services and applications, supported by adequate V2V and V2I communications that, when facing an incident, immediately take action, locally, without the need of intervention of the Traffic Manager, by signalling the location and making possible for others to be aware and advised to either change lane or adjust speed, improving safety and flow efficiency by taking advantage of higher levels of connectivity and automation.	Increase binding cooperation, after negotiation between the different actors, framed under common ToR, partnership contracts, service levels agreements, open data agreements, or exploring rewarding behaviour mechanisms and creating incentives, in order to establish clear mutual benefits and win-win situations for all involved stakeholders across the different combinations of value chains providing single or bundled services.
Information	**Promote Coopetition to ensure horizontal interoperability**	**Reinforce the strategic interdependence of the public and private sectors**
	Acknowledge the benefits of cooperative competition to reach a higher value creation by promoting interaction either between private organizations or public bodies, to develop common implementations and methods of operation in order to ensure horizontal interoperability with new communication media and data sources coming over multi-dissemination channels, aiming to achieve a Common Operational Picture, necessary for the deployment of Cooperative Traffic Management Services.	Improve the mutual understanding and the coordination between the public and private sectors by strengthening cooperation and partnership to develop complementary actions, while making better use of resources and competences, in order to better prioritize, plan and implement measures/actions to be adopted under different scenarios (e.g. congestion, roadwork or planned events), different environments (e.g. urban, interurban, rural) and different contexts (e.g. locally and regionally).
Data Metadata	**Reinforce standardization for interoperability, consistency and synchronization**	**Ensure data transactions across multi value chains and dissemination channels**
	Improve the understanding of the data requirements for setting up decentralized applications or digital TMP's and TCP's, that are necessary to ensure 'end to end' interoperable and continuous services, to be provided consistently, at the right place and the right time, under different combination of actors, across multiple value chains, by developing recommendations, guidelines, data profiles, data specifications or new overarching data formats and interfaces between data standards.	Develop an attractive, sustainable, commonly operated data exchange framework, where every data transaction is fit to fulfil the needs of the involved actors, either as producers or consumers of data, to allow them to better communicate, cooperate and perform with each other, in order to improve the full extension of the 'end to end' road user experience.

Cooperative Traffic Management

- Developed to illustrate and investigate how Cooperative Incident Management could take place in the future, as compared to Traffic management as it takes place now.

local	Regional
	

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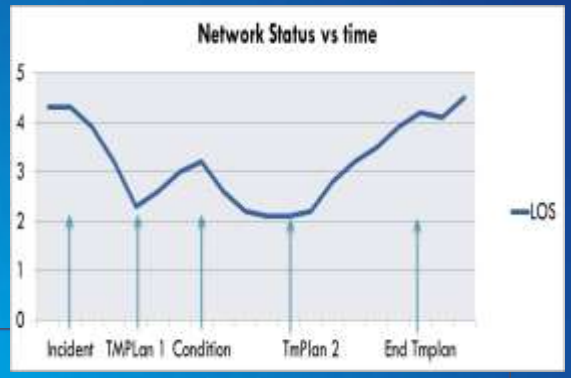
Cooperative Traffic Management

- Building Blocks for Traffic Management Plans



Steps	Road classification and priority	Zoning (identify areas to avoid)	Define Minimum Network Performance	Define Trigger Levels	Establish Agreements
Which Parties?	Public	Public, working with private organisations	Public	Public – Private Cooperation	Public – Private Cooperation
Supporting Tools	Common Operational Picture Tools				

Final Stage

Nº	Initiatives	Budget	Strategic Objectives							
			Develop a TMP's and TCP's into a standardized Technology - 'ITIL'	Develop the roll-out of decentralized cooperative applications	Promote Coopetition to ensure horizontal interoperability	Reinforce standardization for interoperability, consistency and synchronization	Establish a framework architecture for the orchestration of cooperative services	Develop 'new arbitration models' for building mutual benefit agreements	Reinforce the strategic interdependence of the public and private sectors	Ensure data transactions across multi value chains and dissemination channels
I1	Define the common tools for EnTM		++	+	++	++	++	++	++	++
I2	Defining data requirements for EnTM		++	++	++	++	+	+	+	++
I3	Define the Architecture requirements to foster Public and Private Collaboration		++	+	++	+	++	++	++	+
I4	Build up a Common Operational Picture		+	+	++	+	++	++	++	++
I5	Develop the Cooperative Market Place		+	++	++	+	++	++	+	++
I6	Pollenize EnTM across all Road networks		++	++	++	+	++	++	++	++

Short Term Actions

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Initiatives		Supporting Actions			Q4 '17	Q1 '18	Q2 '18	Q3 '18	Q4 '18	Q1 '19	Q2 '19	Q3 '19	Q4 '19
I1	Define the common tools for EnTM	I1.1	. Identification of TMP's Building Blocks Tools:										
			I1.1.1	Classification of Roads (Road priority in network);									
			I1.1.2	Geo-fencing mechanisms to identify areas to avoid, structuring virtual delays in certain									
			I1.1.3	Minimum network performance LOS (Should be defined to distinguish between advice vs									
			I1.1.4	Agreement on trigger levels to engage Cooperative Incident Management.				dep I2.2, I2.4, I2.5					
		I1.2	. Spin off Cooperative TM Local and Regional measures/actions, to be adopted to							dep I6.3.2			
I2	Defining data requirements for EnTM	I2.1	. Standards for road / zone classification					dep I1.1.1, I1.1.2					
		I2.2	. What are the traffic management feed needs, in terms of vehicle data (floating/										
		I2.3	. Investigate which implementations (standards and specifications) should/could										
		I2.4	. Establish interoperability at interface level between the several identified and			dep I6.2.3							
		I2.5	. Coping with the European Statement of Principle, to prevent road users from rece			dep I6.3.2							
I3	Define the Intelligent Governance framework requirements to foster Public-Private Collaboration	I3.1	. Develop a TMP Handbook to address the minimum common functional and orga										
		I3.2	. Balance resources or competences across different operational environments:							dep I1.2, I6.3.2			
			I3.2.1	Cross border									
			I3.2.2	Interurban									
			I3.2.3	Urban									
			I3.2.4	Rural									
I4	Build up a Common Operational Picture	I4.1	. Orchestration of the services needs to be envisioned, possibly as an informatio			dep I6.3.2							
		I4.2	. Along with the National Access Points and the increasing Cloud to Cloud Commu										
		I4.3	. Common Operational Picture:							dep I6.3.2, I1.1, I3.1, I4.4			
			I4.3.1	Synchronized among public and private, all relevant parties									
				I4.3.1.1 Including forecasting									
				I4.3.1.2 Triggers (or thresholds) to automatically initiate Cooperative Incident Manag									
			I4.3.2	Level of Service thresholds (Road segment specific)									
		I4.4	. Update maps, in a timely way, accordingly to the changes made in the traffic circulation plans			dep I6.3.2							
I5	Develop the Cooperative Market Place	I5.1	. Realize the value of the 'connected vehicle' as a receiver/consumer and as a bro										
		I5.2	. Digitize a functional Road Works Traffic Manual.										
		I5.3	. Cooperative Incident Management (Roadworks, Lane closure, Protected accident							dep I6.3.2			
		I5.4	. Explore the benefits of combining dynamic speed limits with intelligent speed a									dep I2.2, I4.3.1, I4.3.2	
I6	Pollenize EnTM across all Road networks	I6.1	. Pack up the main tools (data and architecture requirements, Common Operation										
		I6.2	. Bulk Best Practices and Guidelines for building a Competence Center										
		I6.3	. Outreach to all road networks, by sharing experiences and best practices, upscal										
			I6.3.1	Establish a MoU for a large scale roll-out of the EnTM									
			I6.3.2	Establish a platform for large scale Piloting, monitoring, evaluation.									

European Commission

Questions?

WG Road Safety

C-ITS Plenary Meeting – DG MOVE

14 June 2017

Casto LOPEZ BENITEZ

European Commission

Scope

Assess C-ITS day 1 and day 1,5 services to:

- Identify road safety benefits and challenges
  - Focus on interaction with road users
  - Identify effects on driver/user behaviour
  - Identify adaptations to traffic rules
  - Identify HMI challenges

Methodology

- 6 meetings
- Presentation on specific topics followed by discussion
- Written contributions on the basis of a template

Progress/outcome

- Agreement on those C-ITS services to be prioritised for their road safety potential
- A set on specific recommendations for these C-ITS services
- A set of general conclusions and recommendations on the topics (above).

Next steps

- Discussions are completed
- Meeting yesterday devoted to drafting conclusions/ recomendations
- Draft final report submitted to group end June
- Last meeting dedicated to finalise it

Urban Working Group

C-ITS Plenary Meeting – DG MOVE

14 June 2017

Stephanie Leonard

Urban WG Activities

0_Identification of Urban Deployment Barriers and Urban Focus, Work Plan Definition

1_ITS vs C-ITS Systems

2_Roles and Responsibilities/ETM WG Liaison

3_Identifying Research Needs

4_Incentive Programmes

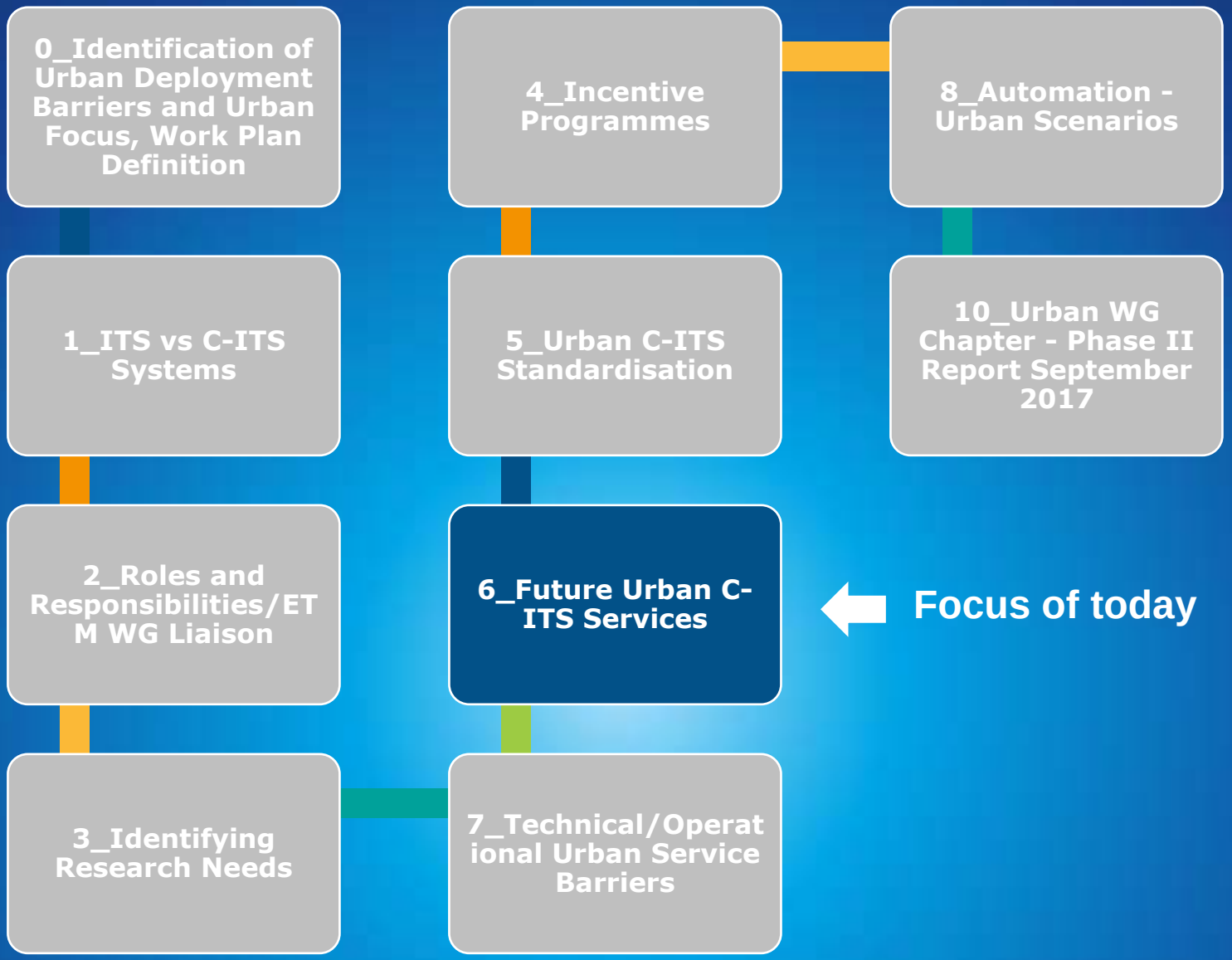
5_Urban C-ITS Standardisation

6_Future Urban C-ITS Services

7_Technical/Operational Urban Service Barriers

8_Automation - Urban Scenarios

10_Urban WG Chapter - Phase II Report September 2017


European Commission
0_Identification of Urban Deployment Barriers and Urban Focus, Work Plan Definition
4_Incentive Programmes
8_Automation - Urban Scenarios
1_ITS vs C-ITS Systems
5_Urban C-ITS Standardisation
10_Urban WG Chapter - Phase II Report September 2017
2_Roles and Responsibilities/ETM WG Liaison
6_Future Urban C-ITS Services
Focus of today
3_Identifying Research Needs
7_Technical/Operational Urban Service Barriers

Recap: Outcomes of Meeting 1

- Based on a ranking/prioritisation exercise, the list of day 1/1.5 C-ITS services **to focus on** for urban application was defined

Level	C-ITS Service	Score
Day 1	TRAFFIC SIGNAL PRIORITY REQUEST BY DESIGNATED VEHICLES	14
Day 1	GREEN LIGHT OPTIMIZED SPEED ADVISORY GLOSA/TIME TO GREEN (TTG)	12
Day 1.5	TRAFFIC INFORMATION AND SMART ROUTING	10
Day 1.5	PARK AND RIDE INFORMATION	9
Day 1	ROAD WORKS WARNING	6
Day 1	IN-VEHICLE SPEED LIMITS	6
Day 1	PROBE VEHICLE DATA	6
Day 1.5	VULNERABLE ROAD USER PROTECTION	6

It was identified early on from WG members that more urban specific C-ITS services can be envisaged → task for the WG to identify additional urban services

Categories of Additional C-ITS Services

1. New Urban Specific Services

2. Extended **Functionality** of Original List of Day 1/1.5 Services

3. Additional **User Groups** of Existing C-ITS Day 1/1.5 Services

C-ITS services to inform, advise and manage/reinforce incl.local traffic regulations.

Enforecement of local traffic regulations via C-ITS not included but is a point of interest for local authorities.

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Access Zone Management (restricted lanes, zones, tunnes/bridges, management of freight loading/unloading areas)

Public Transport Vehicle Approaching

Access management of speed (i.e. near schools or identified priority zones by local authority etc.) - subset of in-vehicle signage

On-street and off-street parking management - subset of on-street and off-street parking information

Temporary traffic light prioritisation for designated vehicles (large events like concerts, football games etc.) - subset of traffic light prioritisation of designated vehicles

Collaborative perception of Vulnerable Road Users (VRUs) - subset of VRU road user protection

Collaborative Traffic Management - subset of connected, cooperative navigation into and out of the city

GLOSA for cyclists

Access Zone Management

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Public Transport Vehice Approaching

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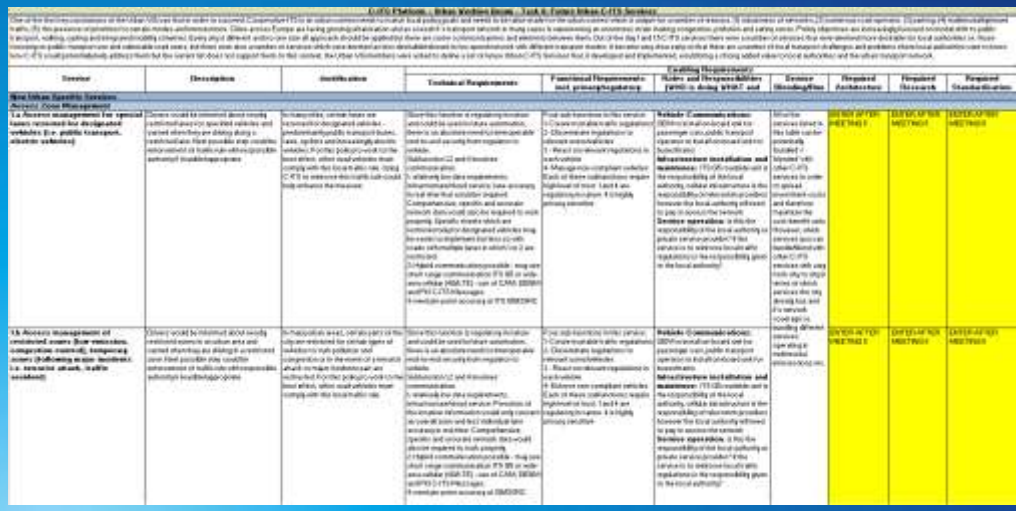
		Inform, Advise, Manage	C-ITS
1	Access management and enforcement special lanes, zones, tunnels & bridges	✓	CAM, DENM PKI
2	Management of loading and unloading areas for freight vehicles	✓	MAP+, DENM, PKI
3.A	Public Transport Vehicle Approaching - paused public transport vehicles/off-loading passengers	✓	CAM, SPaT/TMAP+, DENM
3. B	Public Transport Vehicle Approaching - parking and intersections.	✓	MAP+, DENM
4	Access management of speed in designated zones	✓	IVI, DENM, PKI
5	Management of on-street and off-street parking	✓	~
6	Temporary traffic light prioritization for designated vehicles	✓	CAM, SPaT/ MAP, PKI
8	Collaborative perception of Vulnerable Road Users (VRUs) - subset of VRU road user protection	✓	CAM, SPaT/ MAP, DENM
9	Collaborative Traffic Management - subset of connected, cooperative navigation into and out of the city	✓	CAM, SPaT/ MAP, IVI, DENM, PKI
10	GLOSA for cyclists	✓	CAM, SPaT/ MAP

Further Detail and Next Steps

- The Urban WG have developed a Future Urban C-ITS Service Deliverable which includes the following infomation:
  - Basic service descriptions
  - Explanations-justifications
  - Basic Technical Requirements
  - Basic Functional Requirements
  - Roles and responsibilities



- Before September the deliverable will be updated with further information including architecture, required research and standardisation needs.
- **The full table aims to be included in the C-ITS Platform Phase II Report**

WG Horizontal Issues: Business Models

C-ITS Plenary Meeting – DG MOVE

14 June 2017

Guus van de Schouw

European Commission

Objectives and scope (1/2)

- Deepen the analysis performed in the first phase of C-ITS platform.

- Work was put on hold waiting for outcomes of WG on Cost Benefit Analysis (list of Day 1 applications) and WG on Implementation Issues (urban/non urban environment)

Objectives and scope (2/2)

- Raise awareness of different interconnected business models for C-ITS services; get a sense as for what issues are behind each stakeholder's position

- Investigate interest in and mutual understanding of business models, to ultimately realize a business plan for the eco-system

- Explore process for arriving at a business case for all involved stakeholders

Organization of work (1/2) - Potential approaches

- Track 1:

Build a bottom-up shared view on business models for C-ITS services

- Track 2:

Approach business models from top-down view – business architecture

- Track 3:

Decomposition of cost-benefit analysis

- Track 4:

Collect the industry requirements

- Track 5:

Consider available inputs – literature / initiative review

Organization of work (2/2)

- Determine (a combination of) tools relevant for describing an C-ITS ecosystem business model (e.g. value network, value chain, canvas)
- Enabling exercise: map information between stakeholders for selected C-ITS services
- Describe views/issues on business models from different stakeholder perspectives
- Summarize issues identified
- Identify recommendations / follow-up actions

Progress so far (1/3)

- Determine (a combination of) tools relevant for describing an C-ITS ecosystem business model (Value network, value chain)
- Enabling exercise: map information between stakeholders for selected C-ITS services

➢Largely completed, to be edited

Value chain

Generic value chain for traffic information incl. detailed process steps		Content provision												Service provision												End User
		Content Collection						Content Processing						Service Provision						Service Presentation						
Road Works Warning (Short Term) - Germany - ETSI ITS G5		Detection	Data delivery	Data reception	Data pre-processing	Data delivery	Commu-nication	Data reception	Content fusion	Data processing	Quality check	Content delivery	Commu-nication	Content reception	Content fusion	Service generation	Pre-formatting	Service delivery	Commu-nication	Service reception	Service decoding	Info fusion	Service rendering	Service presentation		
Roles	**Example Actors**																									
R-ITS-S Operator	Hessen Mobil	X	X (IRS)	X	X	X																				
C-ITS-S Operator	Hessen Mobil							X	X	X	X	X		X	X	X	X	X	X							
Communication Provider	Telekom, Unity Media, fixed cable			X			X						X													
Service Application Provider	TomTom, INRIX, Here																									
V-ITS-S Operator	Volkswagen, Opel ...																		X	X	X	X	X	X		
TCC Operator	Hessen Mobil					X (Road Works Manage-ment System)																				
Road Infrastructure Operator	Hessen Mobil	X	X (Road Works Safety Trailer)																							
Infrastructure PKI Operator	tbd																									

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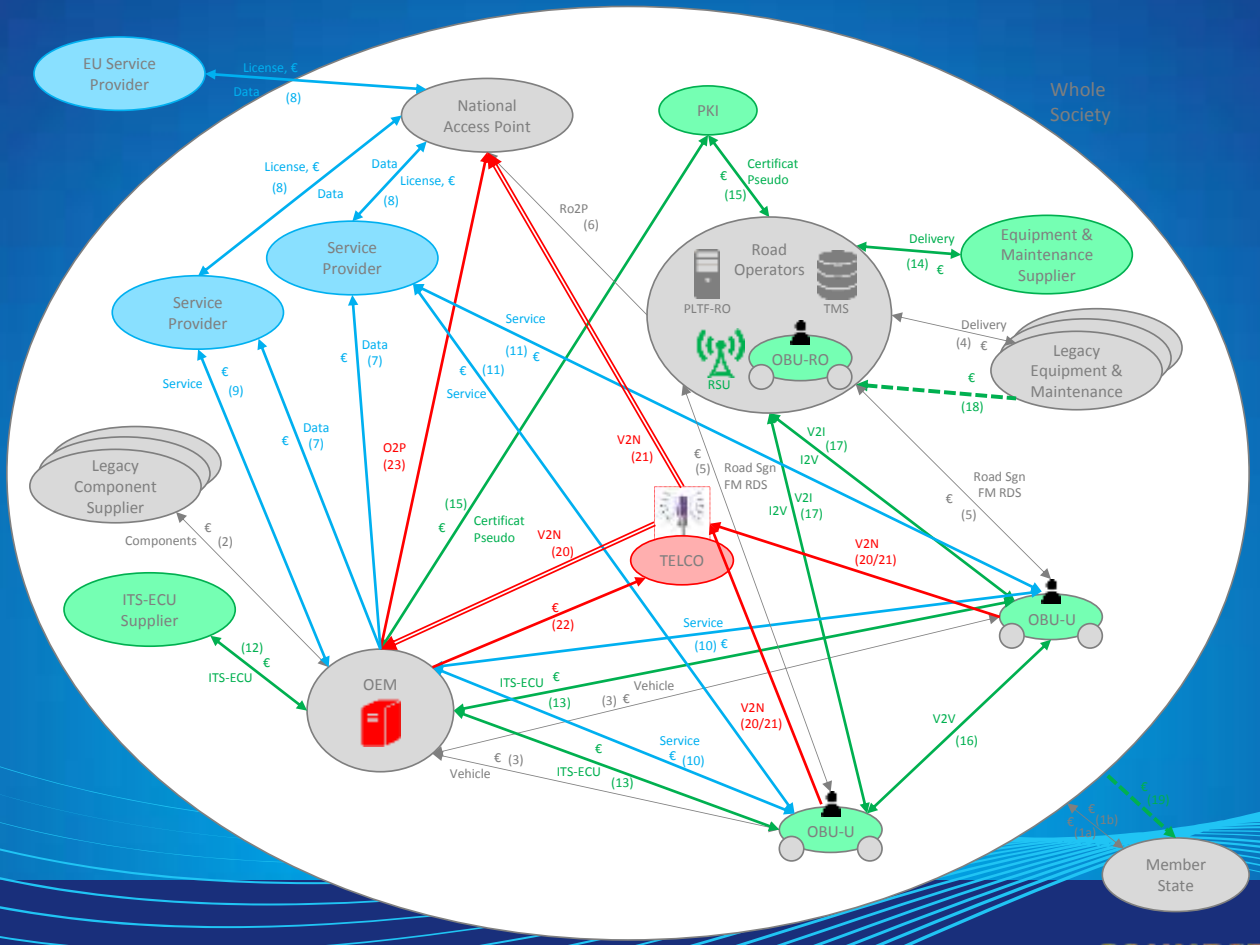
Value Network



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Progress so far (2/3)

- Describe views/issues on business models from different stakeholder perspectives

➢Most stakeholder inputs received and discussed (but more public than private perspective). Not meant to be comprehensive and can be conflicting

➢Need to streamline and establish common narrative

➢ Focus on business model aspects, other aspects (e.g. technology choices) should be short and illustrative, not prescriptive

Progress so far (3/3)

- Summarize issues identified
  - ➢First mapping exercise based on draft report carried out
  - ➢To be further deepened & reviewed
- Identify recommendations / follow-up actions
  - ➢ To be further developed

Business Models

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Questions?