Volker Fricke

EU Platform: Co-operative-ITS (C-ITS) Workgroup related to In-Vehicle Data Access
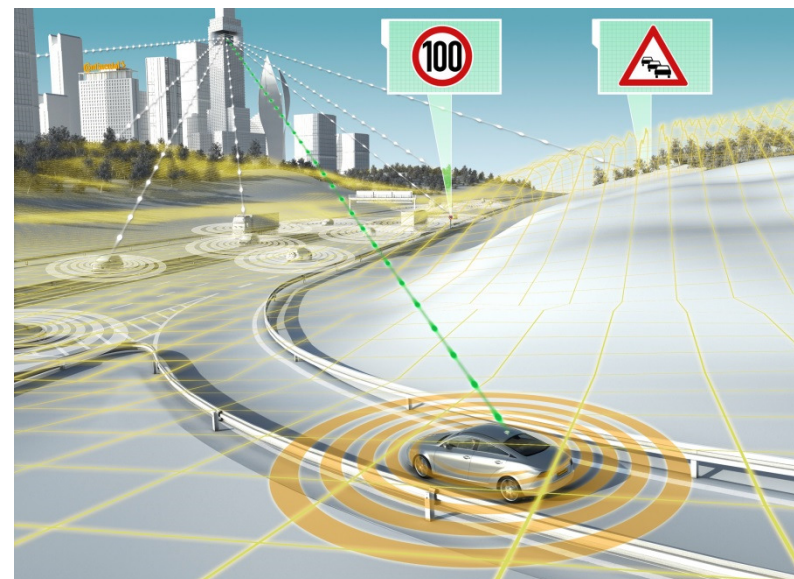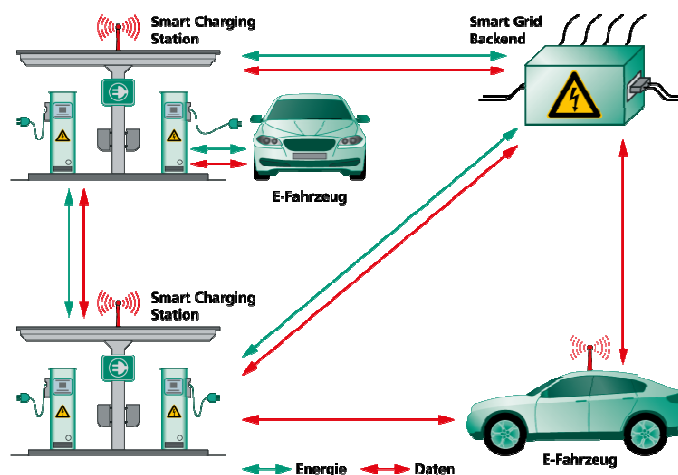
April 2016

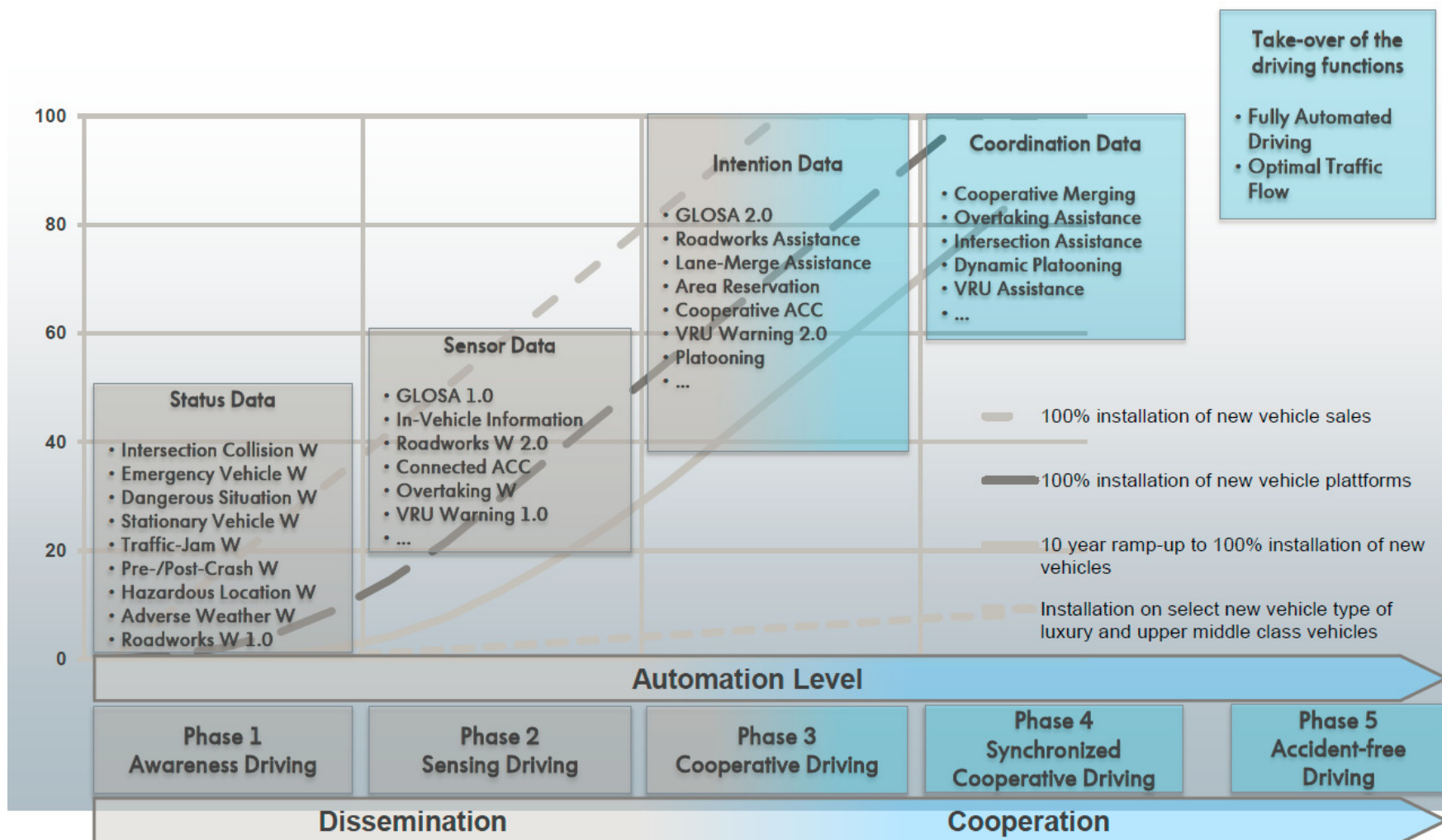# The big picture: Connected Vehicle, eMobility, ITS Vehicle-to-Everything (V2X)

Source: http://www.delivered.dhl.com/

Source: Continental

C-ITS: V2X Use Cases and Roadmap

Take-over of the driving functions

- Fully Automated Driving
- Optimal Traffic Flow

Intention Data

- GLOSA 2.0
- Roadworks Assistance
- Lane-Merge Assistance
- Area Reservation
- Cooperative ACC
- VRU Warning 2.0
- Platooning
- ...

Coordination Data

- Cooperative Merging
- Overtaking Assistance
- Intersection Assistance
- Dynamic Platooning
- VRU Assistance
- ...

Sensor Data

- GLOSA 1.0
- In-Vehicle Information
- Roadworks W 2.0
- Connected ACC
- Overtaking W
- VRU Warning 1.0
- ...

Status Data

- Intersection Collision W
- Emergency Vehicle W
- Dangerous Situation W
- Stationary Vehicle W
- Traffic-Jam W
- Pre-/Post-Crash W
- Hazardous Location W
- Adverse Weather W
- Roadworks W 1.0

— — — 100% installation of new vehicle sales

——— 100% installation of new vehicle plattforms

——— 10 year ramp-up to 100% installation of new vehicles

– – – Installation on select new vehicle type of luxury and upper middle class vehicles

Automation Level

| Phase 1 Awareness Driving | Phase 2 Sensing Driving | Phase 3 Cooperative Driving | Phase 4 Synchronized Cooperative Driving | Phase 5 Accident-free Driving |

Dissemination   **Cooperation**

Source Car 2 Car Communication Consortia / Presentation at ETSI ITS Workshop March 2016, Sophia Antipolis, France

Agenda

- **Scope of EU Platform C-ITS**

- **C-ITS Work Group Status**

  "Cooperative ITS (C-ITS or cooperative systems) is a group of technologies and applications that allow effective data exchange through wireless technologies among elements and actors of the transport system, very often between vehicles (vehicle-to-vehicle or V2V) or between vehicles and infrastructure (vehicle-to-infrastructure or V2I).

- *However, for the purpose of the work to be undertaken by the C-ITS platform and more in general in view of a roadmap for the deployment of C-ITS in the EU, C-ITS are to be understood as a broad concept which is not limited to V2V or to V2I communication but also includes C-ITS applied to vulnerable road users such as pedestrians, cyclists or motorcyclists."*

Agenda

- **Scope of EU Platform C-ITS**

- Current C-ITS Work Group Status

C-ITS Platform Introduction

- The C-ITS Deployment Platform coordinated by DG MOVE is a closed, public-private forum with the objective to provide policy recommendations for the development of a deployment strategy and roadmap for C-ITS in the EU and identify potential solutions to some cross-cutting issues.

  It is expected to be followed by a Communication in the second part of 2015, presenting the scenarios for deployment, the gap analysis of critical issues to be tackled, the appropriate actors to take the lead on each, recommended actions to support the different options and ultimately providing input for policies.

- The first plenary meeting took place on 2014, November 3rd, the second meeting on 2015 May 6th, the third on 2015, July 8th. The final plenary of phase 1 was in February 2016

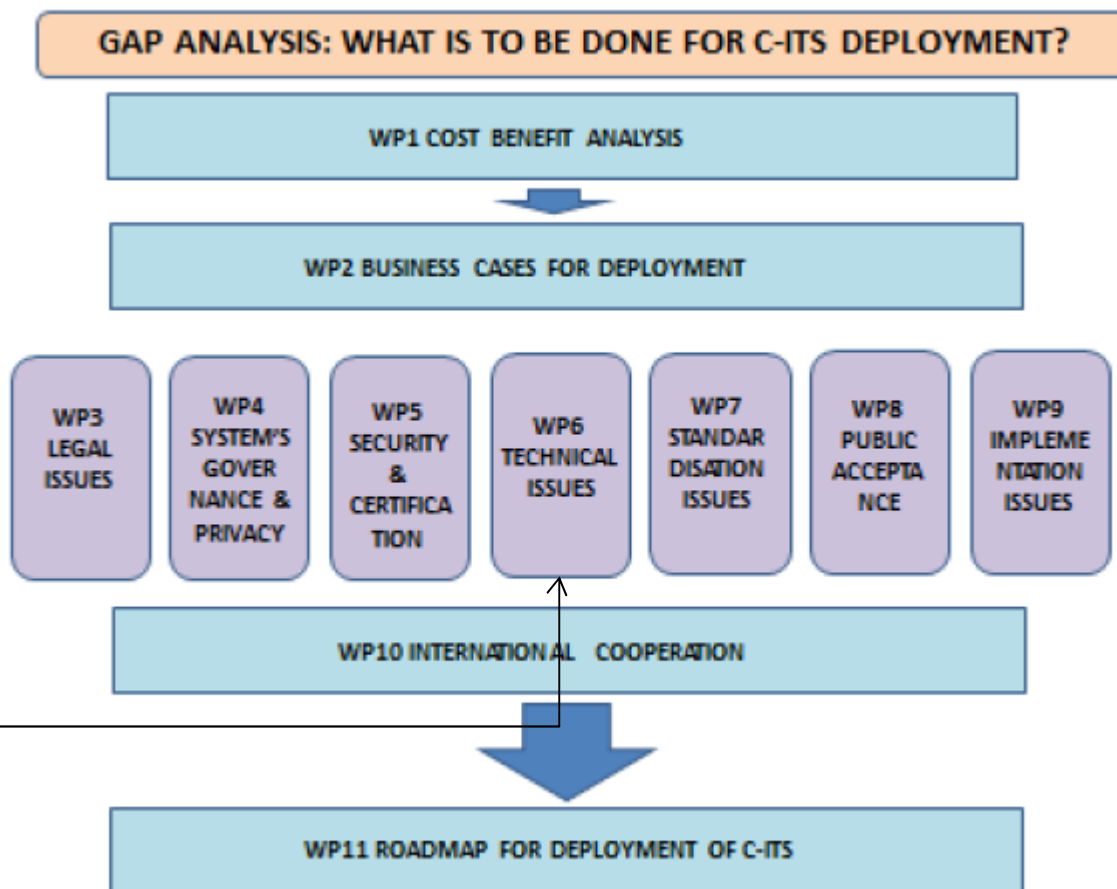- *The second phase of C-ITS was kicked-off in April 2016.*

C-ITS Platform Partners.
Total attendees 136 people, segmented in 11 Workgroups

- **Sectors** include Public and Private Institutions , Private Enterprises

  European Commision, Users Associations, Indivi. Expert, IT, Tier1 Supplier, Automotive Industry, Member States, Road Infrastructure Managers, C-ITS Relevant European Sector Assosiation, Service Provider, Local/Regional Authorities, Telecommunication Industry, Insurance Companies

C-ITS Workgoup Structure – Total 11 WP's

GAP ANALYSIS: WHAT IS TO BE DONE FOR C-ITS DEPLOYMENT?

WP1 COST BENEFIT ANALYSIS

WP2 BUSINESS CASES FOR DEPLOYMENT

WP3 LEGAL ISSUES

WP4 SYSTEM'S GOVERNANCE & PRIVACY

WP5 SECURITY & CERTIFICATION

WP6 TECHNICAL ISSUES

WP7 STANDARDISATION ISSUES

WP8 PUBLIC ACCEPTANCE

WP9 IMPLEMENTATION ISSUES

WP10 INTERNATIONAL COOPERATION

WP11 ROADMAP FOR DEPLOYMENT OF C-ITS

Agenda

- Scope of EU Platform C-ITS

- **C-ITS Work Group (WG6) Status**

WG6 (Invehicle Data) – Objective of the work-group

Objective:

- The purpose of this work group is to reach a common vision on fair access to in-vehicle resources and data. Independently of the model/solution retained to give access to in-vehicle data and resources, the main objective should be to allow customers the freedom to choose which service they desire, that meets their specific needs. This goes through an open and undistorted competition for the provision of these services.

- This objective is backed by the recent adoption of the eCall type-approval Regulation, with the provision that the Commission shall assess the need of requirements for an interoperable, standardized, secure and open-access platform no later than two years after the entry into force of this Regulation.

- Four task forces have been set up to address the 3 possible technical solutions (On-board application platform, In-vehicle interface, Data server platform) and the definition of a reference dataset, and to provide input material to the working groups.
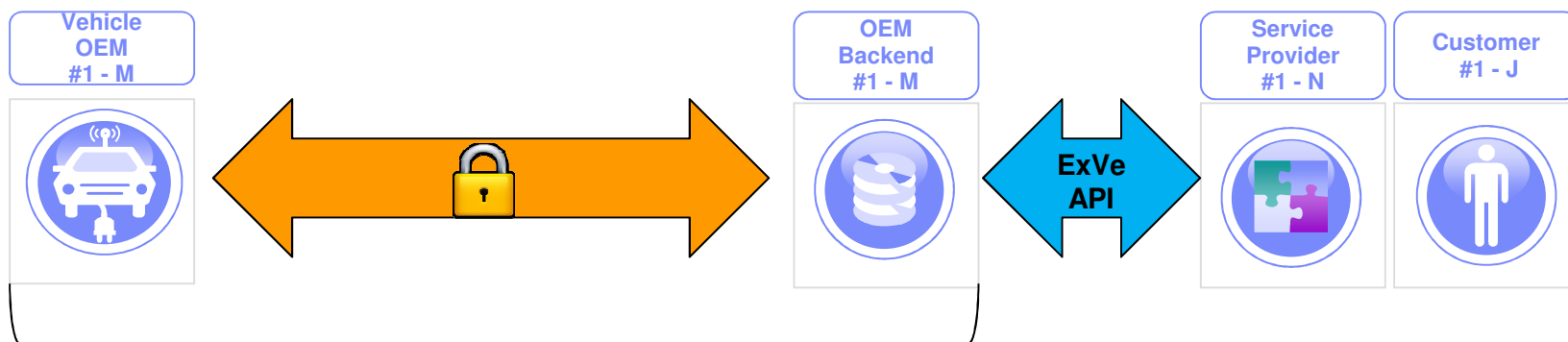
WG6 (Invehicle Data) – Work group invehicle-data has been splitted in four task forces.

- For the 3 first task forces, the description of the solutions should describe how the compliance with the 5 guiding principles can be ensured, and define an implementation roadmap in a "who does what by when" (industry, authorities, SOs etc.) approach, highlighting in particular:
  - Building blocks of the solution (e.g. security, physical mounting and powering if applicable, organizational issues etc.)
  - Impact of the type of access (only access to data, access to data + other resources e.g. HMI or communication channels) on these building blocks
  - Elements of the solution already available
  - Gaps to be fulfilled (e.g. standardization)
  - Timeline to make the solution feasible

- Task Force 1: On-board application platform

- Task Force 2: In-vehicle interface, Platform of shared in-vehicle resources

- Task Force 3: Data server platform

- Task Force 4: Identify the data needs (for task forces 1, 2 and 3)

TF3: Connected Vehicle Data Server Architecture

(Cloud) Extended Vehicle Interface (ExVe API)

ISO 20077 – Concept
ISO 20078 - Webservice

Mobile network

ISP Secure Connection

ISP Backbone

Secure Connection

Standardized interfaces

OEM Backbone

Service Providers

Customers
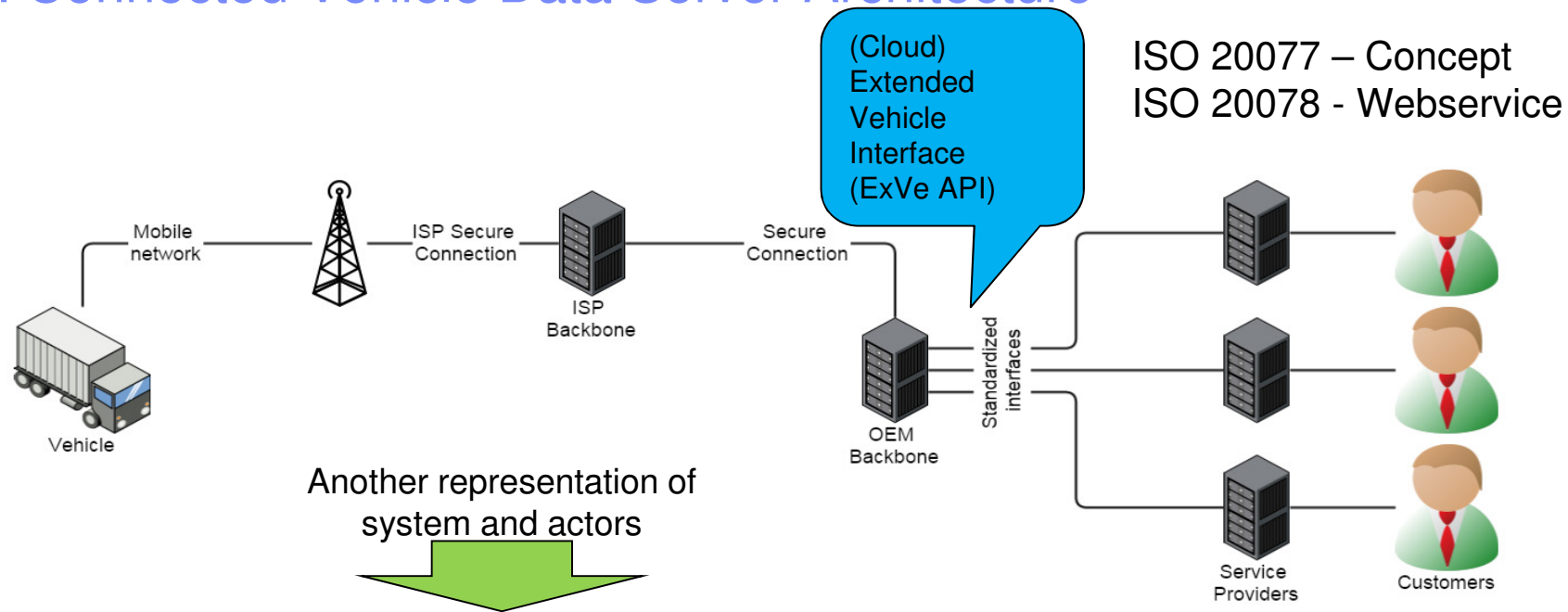
Vehicle

Another representation of system and actors

| Vehicle OEM #1 - M | | OEM Backend #1 - M | Service Provider #1 - N | Customer #1 - J |

ExVe API

Secured Vehicle communication link between vehicle and OEM backend

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