Workshop introduction

H.VM-VMIA work item
Implementation of vehicular multimedia systems

Online workshop 27 April 2022

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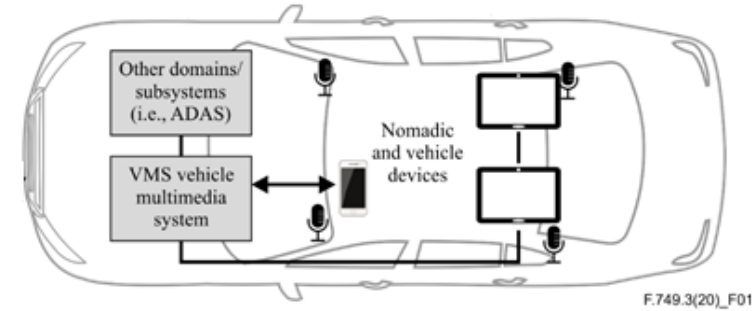
H.VM-VMIA – History

- **Jul. 2020 to Sep. 2022 – the Focus Group on Vehicular multimedia produced 3 technical reports:**
  - June 2020 – publication by WG1 of the technical report "Use cases and requirements for the vehicular multimedia networks" – endorsed as Recommendation F.749.3 in Aug 2020
  - April 2021 – publication by WG2 of the technical report "Architecture of vehicle multimedia systems" – endorsed as Recommendation H.551 in Jan. 2022
  - Sep 2022 – publication by WG3 of **TR3** technical report "Implementation aspects of vehicular multimedia"
  - ***Note****: Technical reports are informative*
- **Oct 2022 – ITU SG16 approved the creation of a new recommendation about "Vehicular Multimedia Implementation Aspects", based on the FG-VM WG3 technical report**
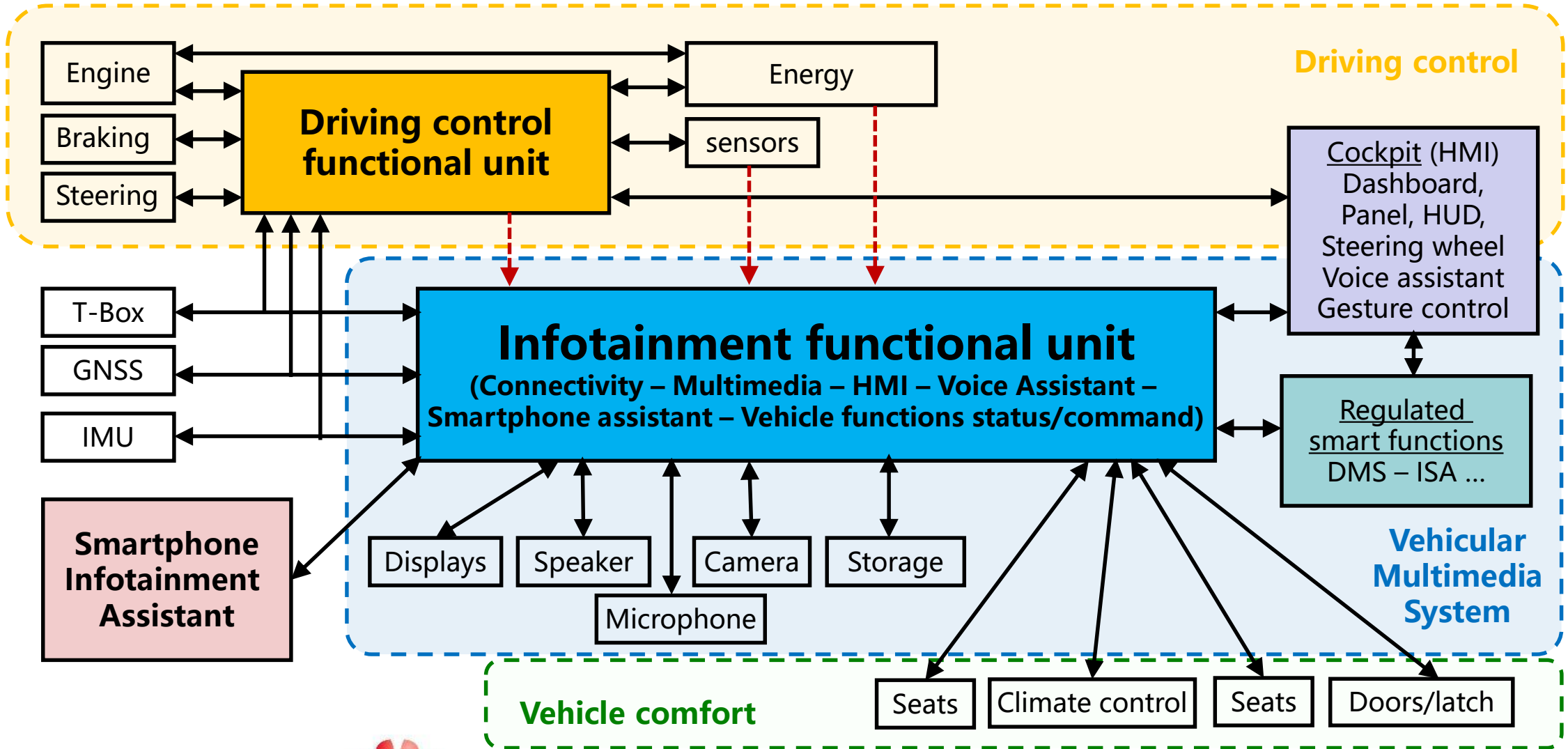
H.VM-VMIA scope

F.749.3(20)_F01

- **Scope:**
  - To provide a description of different aspects relevant for the implementation of Vehicular Multimedia System (VMS) functionalities in vehicles.
  - Implementation aspects include a range of different topics, like for instance interoperability (connectivity, data format …), HW and SW integration in the vehicle systems, user experience, or Human Machine Interface …
  - The recommendation aims at serving as a specification recommending best practices to implement Vehicular Multimedia functionalities
- **Addressing for instance:**
  - Best user experience using car multimedia, e.g.:
    - Ergonomic & quick learning (avoid confusing driver/users) – advanced AI features (voice / gesture …) – intelligent cockpit
  - Security and safety:
    - Safe driving (right message at the right time – priorities) - Cyber-security / privacy
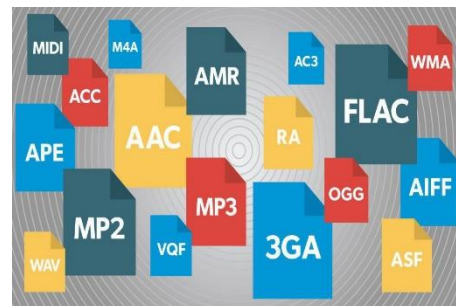
Functional view

Driving control

Engine

Braking

Steering

Driving control functional unit

Energy

sensors

Cockpit (HMI) Dashboard, Panel, HUD, Steering wheel Voice assistant Gesture control

T-Box

GNSS

IMU

Infotainment functional unit
(Connectivity – Multimedia – HMI – Voice Assistant – Smartphone assistant – Vehicle functions status/command)

Regulated smart functions DMS – ISA ...

Vehicular Multimedia System

Smartphone Infotainment Assistant

Displays

Speaker

Camera

Storage

Microphone

Vehicle comfort

Seats

Climate control

Seats

Doors/latch

长安汽车 CHANGAN

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Technical report scope

Connectivity

Smartphone infotainment assistant

Media formats
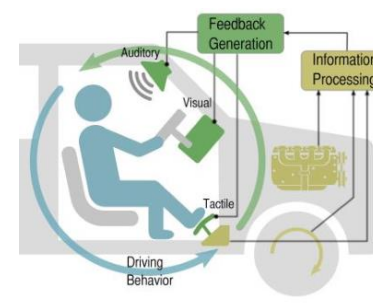
Cyber-security & privacy

Safety

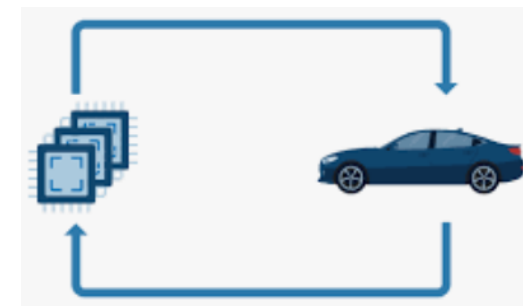## HMI

Voice Assistant

Gesture Control

Motion sickness free

Auditory interaction

In-vehicle integration

H.VM-VMIA development status

Section	Title	Status
7.1	**Connectivity**	
7.1.1	WiFi	Ongoing - Performance recommendations
7.1.2	BT	Ongoing - Performance recommendations
7.1.3	in-Vehicle network	Ongoing - Performance recommendations
7.1.4	Broadcast communication	Not yet in H.VM-VMIA but recommendations available in the TR3
7.2	**HMI**	
7.2.1	Voice assistant	Ongoing - Functional, Performance & Tunning Interface recommendations
7.2.2	Gesture recognition	TODO - scientific references in TR3 needing to be turned into recommendations in H.VM-VMIA
7.2.3	Motion Sickness free	TODO - scientific references in TR3 needing to be turned into recommendations in H.VM-VMIA
7.2.4	Auditory Interaction	Ongoing - Functional & Performance recommendations
7.3	**Media format and control**	TODO - complete recommendations available in the TR3
7.4	**Smartphone Infotainment Assistant**	TODO - some recommendations in TR3 needing to be enhanced in H.VM-VMIA
7.5	**Cybersecurity and privacy protection**	TODO - some recommendations in TR3 needing to be enhanced in H.VM-VMIA
7.6	**Driving and user safety**	TODO - some recommendations in TR3 needing to be enhanced in H.VM-VMIA
7.7	**Vehicle integration**	Not yet in H.VM-VMIA but recommendations available in the Technical Report

Timeline and Liaisons

- **Time line**
  - Draft expected to be completed latest by the end of 2023
  - Approval at the first SG16 plenary in 2024
  - Public workshop to share ITU views with the automotive community and collect feedback - 2 other workshops in 2023:
    - Workshop#2
      - Date to be decided with SG16 / Q27 meeting this week – around Summer
      - Present updated recommendation (i.e. according to the previous slide)
    - Workshop#3
      - Around Autumn
      - Present complete draft and collect last feedback before going to approval
- **Liaison**
  - Cooperation with SG12 (Performance QoS & QoE) Q4 (Objective methods for speech and audio evaluation in vehicles)
  - Alignment with Q4/12 new WI P.ASR: "Performance requirements for automatic speech recognition (ASR) in vehicles
  - Q4/12 welcomes participation of experts in this field and would be pleased if experts of ITU-T Q27/16 feel comfortable to also join the meetings of Q4/12

Workshop Agenda

09:00 - 09:05	*Welcome Remarks*: Hideki Yamamoto, Q27/16 rapporteur, **Oki Electric Industry Co., Ltd. (OKI)**
09:05 - 09:20	*"H.VMIA introduction - Purpose/Scope - Status"* , H.VMIA editors, **Changan Auto & Huawei**
09:20 - 09:45	*"In-Vehicle Connectivity related VMIA Recommendations",* Chang Li, **Changan Automobile**
09:45 - 10:10	*"Digital Assistant standardization recommendations for Android OS"*, Michael Schlitenbauer, **VW - CARIAD**
10:10 - 10:35	*"Cockpit synthesis and vehicle feature HM"* , Stéphane Feron, **Stellantis**
10:35 - 10:55	**Coffee Break**
10:55 - 11:20	*"Human-Machine Interaction related VMIA Recommendations",* Zehui Cheng, **Changan Automobile**
11:20 - 11:45	*"Recommendations for Smartphone Infotainment Assistants"*, Francois Fischer, **Huawei Technologies R&D**
11:45 - 12:00	**Conclusions and thank you**, H.VMIA editors, **Changan Auto & Huawei**

Thank you