SENSORIS

<u>Sensor</u> <u>I</u>nterface <u>S</u>pecifications

1. Vision and objectives

Sensor Interface Specification *Innovation Platform*, SENSORIS, is an open group of significant actors from the global vehicle industry, map and data providers, sensors manufacturers and telecom operators who joined forces, under the form of this *Innovation Platform*, driven by the common vision and belief that, defining an appropriate interface for exchanging information between the in-vehicle sensors and a dedicated cloud as well as between clouds will inevitably:

- enable broad access, delivery and processing of vehicle sensor data
- enable easy exchange of vehicle sensor data between all players
- enable enriched location based services
- drive global growth in this field

Main purpose and objectives of SENSORIS are to:

- ensure that SENSORIS membership represents the main stakeholders in this field
- find the needs of all stakeholders and their priorisation (short-, mid-, long-term)
- establish and maintain the SENSORIS deployment roadmap
- deliver and maintain technical specifications defining the format and content of sensor and campaign data in the cases mentioned in the in-scope section:
    - o vehicle-to-cloud data upload format (vehicle-based data only)
    - o cloud-to-cloud data exchange format (vehicle-based data and other data needed for mobility services)
    - o cloud-to-vehicle 'campaign' request format (request for specific data at specific locations and times only)

2. SENSORIS scope

In order to better define the work to be undertaken in SENSORIS, the following scope is proposed considering what is in the scope and out of the scope of SENSORIS:

in scope
- vehicle-to-cloud data upload format (vehicle-based data only)
- cloud-to-cloud data exchange format (vehicle-based data and other data needed for mobility services)
- cloud-to-vehicle 'campaign' request format (request for specific data at specific locations and times only)
- conformance to data authorization/authentication process
- conformance to data privacy regulations
- conformance to approved security regulation

(N.B. 'cloud' can be an intermediate server or aggregation server or a service provider input gateway)

out of scope
SENSORIS will not:
- define infrastructure or architecture
- establish commercial agreement frameworks for data exchange
- define data exchange for v2v, v2i, i2v (cooperative data) exchange
- define cloud-to-vehicle services

This work start with the already available 1st draft specifications proposed by HERE[1]

The timeframe to establish the updated draft specifications is planned to be one year.

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[1] SENSORIS "Vehicle Sensor Data Cloud Ingestion Interface Specification" (v2.0.2) https://lts.cms.here.com/static-cloud-content/Company_Site/2015_06/Vehicle_Sensor_Data_Cloud_Ingestion_Interface_Specification.pdf)

3. SENSORIS organisation

The SENSORIS platform work is organised in four Working Groups (WG):

WG#	Working Group title and short description

WG1	**Needs & requirements**
	Leader = HERE
	Alignment of existing Sensor Data Standards and summarizing the needs of content and details of sensor data from the LBS provider view.
	This is composed of but not restricted to:
	    - List of Sensor Data Attributes, Classified by topics
	    - Meta-Requirements on information per attribute, as e.g. quality metrics
	Requirements on sensor data representation

WG2	**Availability of sensor data (OEM/suppliers)** **Leader = Daimler** Gathering of available in-vehicle sensor data including their specific properties
WG3	**Interface architecture and high level design** **Leader = Elektrobit** Overall architecture and workflow of data between vehicle and cloud (and cloud to cloud). Proposed communication paradigms and security approach.
WG4	**Interface specifications** **Leader = Continental** Provide Data Definitions for Sensor Data including Quality Metrics and Location References according Requirements from WG1. Provide Data Definition for Data Request Channel. Starting point is the existing Draft SENSORIS Specification.

Table 1: Working Group description summary
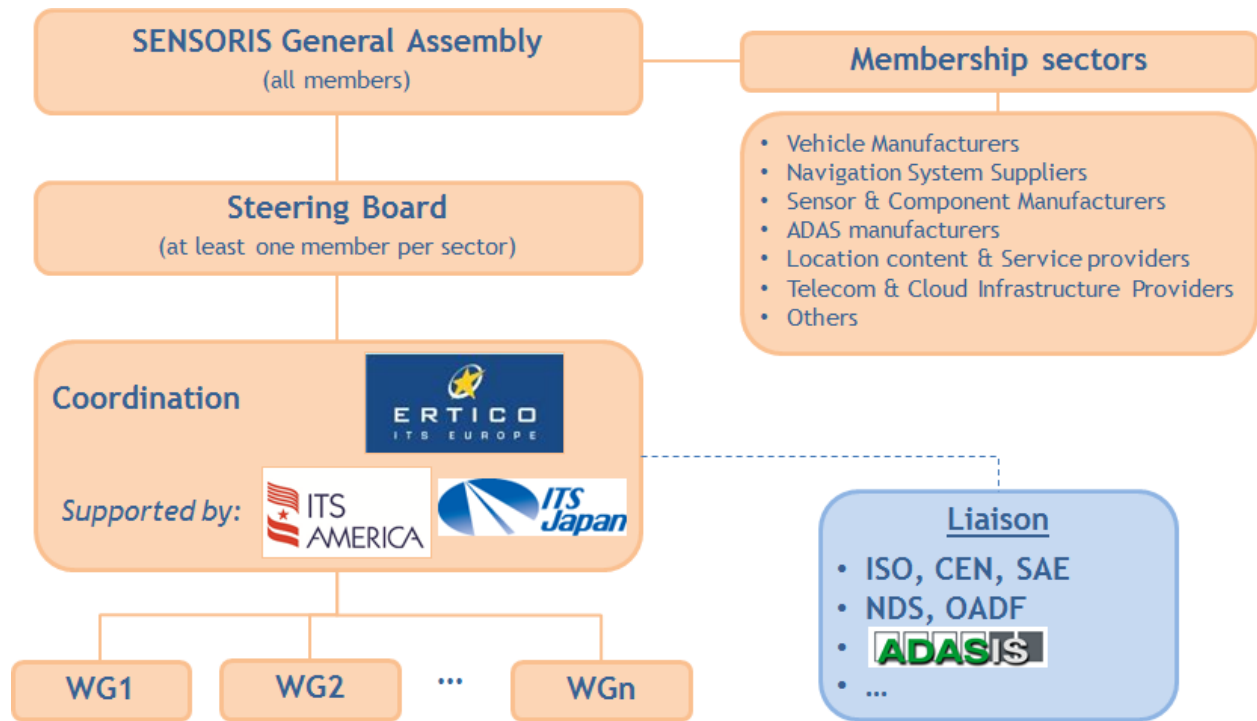
Figure 1: SENSORIS organisation, Working Group structure and liaison