THE EXTENDED VEHICLE

1 THE EXTENDED VEHICLE CONCEPT

An extended vehicle is understood as a physical road vehicle with external software and hardware extensions for some of its features. These extensions are developed, implemented and managed by the vehicle manufacturer.

The vehicle manufacturer is fully responsible for the communication among the various parts of the extended vehicle, especially between the internal and external software and hardware components.

2 EXTENDED VEHICLE CONNECTIVITY

The extended vehicle offers open access interfaces for the provision of services by vehicle manufacturers or third parties. The interfaces need to be designed and implemented in such a way that access to the extended vehicle does not jeopardize security, safety, product integrity, data privacy or any other rights or legal obligations.

Depending on the purpose for which access is sought, the extended vehicle can be accessed through:

- The on-board diagnostics (OBD) interface for emission control and legally prescribed diagnostic services and the fleet management systems (FMS) interface for heavy duty vehicles (based on the industry standard)
- A web interface: for example, for remote diagnostic support (RDS) and for remote fleet management systems (rFMS) for heavy duty vehicles (based on the industry standard)
- An interface for safety-related applications in the field of cooperative intelligent transport systems (C-ITS) such as CAM and DENM messages

In this context, it is understood that vehicle manufacturers have the freedom to decide whether to offer any or all of these options and cannot be expected to accept automatic liability for third-party applications nor to test and approve all of them. Equally, vehicle manufacturers are free to provide additional interfaces.

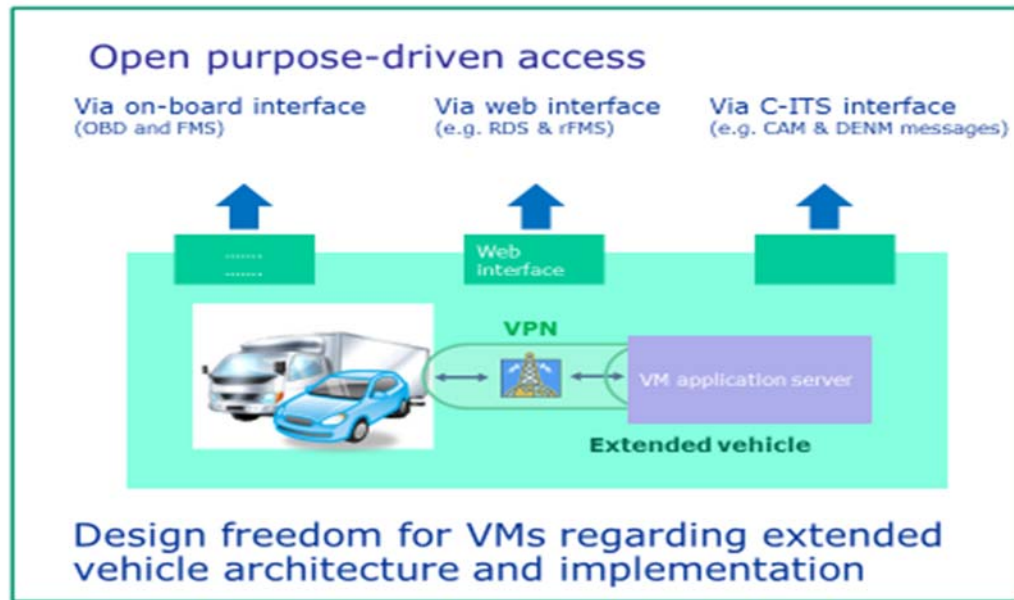Access to the extended vehicle is illustrated in the figure below.

Figure 1. The extended vehicle access

3 STANDARDISATION STATUS

A series of standardisation projects dealing with the extended vehicle and the extended-vehicle web interface have been approved and launched by ISO in 2014 as illustrated in the figure below.

Each of the three projects has a specific purpose: ISO 20077 relates to the extended vehicle methodology, ISO 20078 to the web interface and ISO 20080 to the provision of remote diagnostic support.
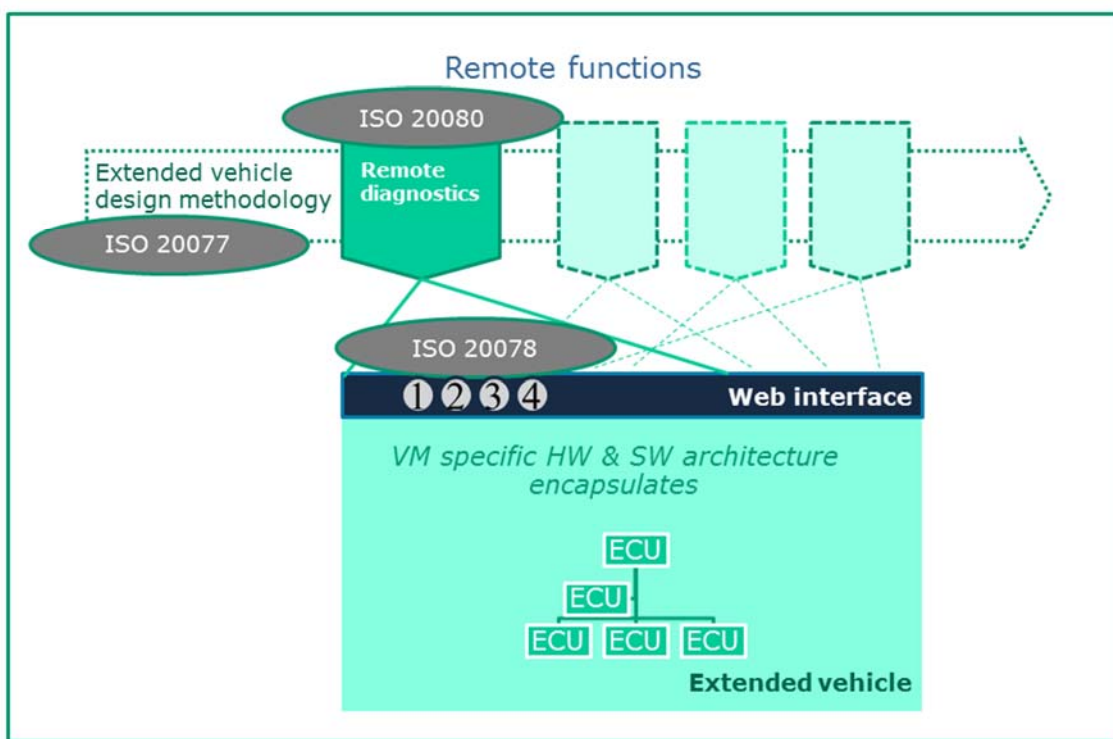

Figure 2. The extended vehicle standardisation map
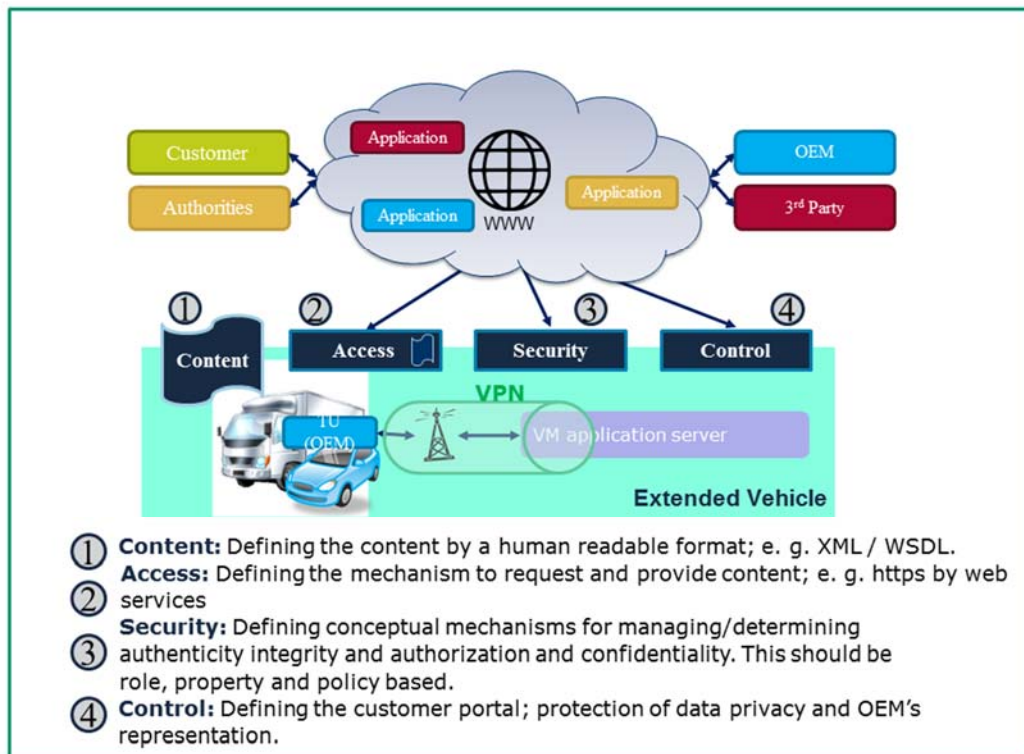
The web interface consists of four parts as illustrated in the following figure.

Figure 3. The extended vehicle web interface