Topic: digital.auto

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Background - what is COVESA?

COVESA (Connected Vehicle Systems Alliance) is an open, collaborative, and impactful technology alliance, accelerating the full potential of connected vehicles. Go to covesa.global to find out more.

Framing Question

How can we help OEMs to accelerate SdV adoption with COVESA-enabled use cases?

Vision

OEMs want to create new, digital vehicle experiences, generate software-enabled revenues through vehicle applications, and successfully launch innovative digital vehicle services. The Software-defined Vehicle (SdV) promises significantly shorter time-to-market, improved agility, and the ability to continuously improve the digital vehicle experience even after the Start of Production (SOP) via Over-the-Air Updates.

COVESA-defined standards enable the seamless interaction of SdV-based applications with the actual vehicle. An extensive set of COVESA-defined vehicle APIs and standardized data points encapsulate the sensors and actuators of the vehicle.

Using the combination of COVESA standards and open source SdV implementations, OEMs will get the support required to make their digital journey a success. The planned collaboration with the Eclipse SdV project is promising strong synergies, especially for SdV tooling and API integration. Another interesting opportunity for collaboration is with AUTOSAR, especially from a retrofit perspective.

Playground

The digital.auto initiative aims to support OEMs in the adoption of SdV and COVESA standards by making it easy to rapidly explore the feasibility of new business ideas and features through an online playground. This playground provides a rapid prototyping environment for SdVs, including access to the full catalogue of COVESA API standards.
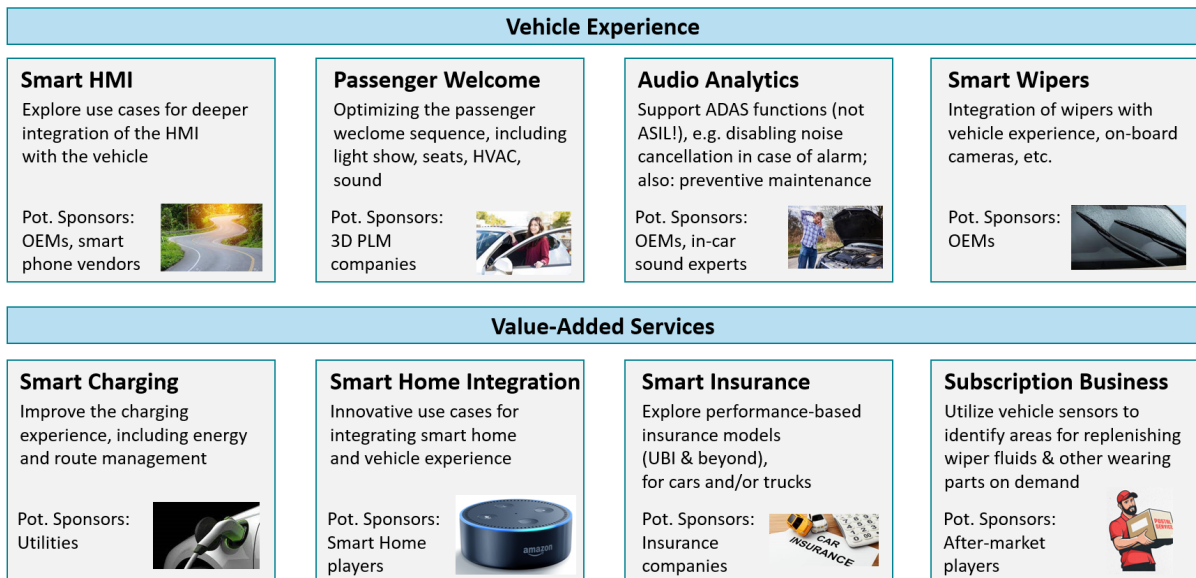
The digital.auto initiative proposes to utilize this online playground to create an online SdV community, which jointly explores use cases in different domains, leveraging COVESA standards in the process. Over time, the playground can evolve into a strong showcase for COVESA and help COVESA to establish a demand-driven way of evolving its own standards. The portfolio of use case implementations in the playground will help to constantly validate and evolve the functional completeness of the COVESA standards and make it easier for OEMs to find the most suitable functions for their own needs.

The goal is to make the playground the center of a vibrant open source ecosystem related to COVESA standards and Eclipse SdV. To achieve this, the value of the playground should first be proven via a use case-centric approach, as outlined in this BoF proposal. The actual development and enhancement of the current playground infrastructure will be addressed in a second BoF, once it has shown relevant traction for different COVESA-related use case domains. The current proposal is to set up this technical development around digital.auto as a joint COVESA and Eclipse SdV working group.
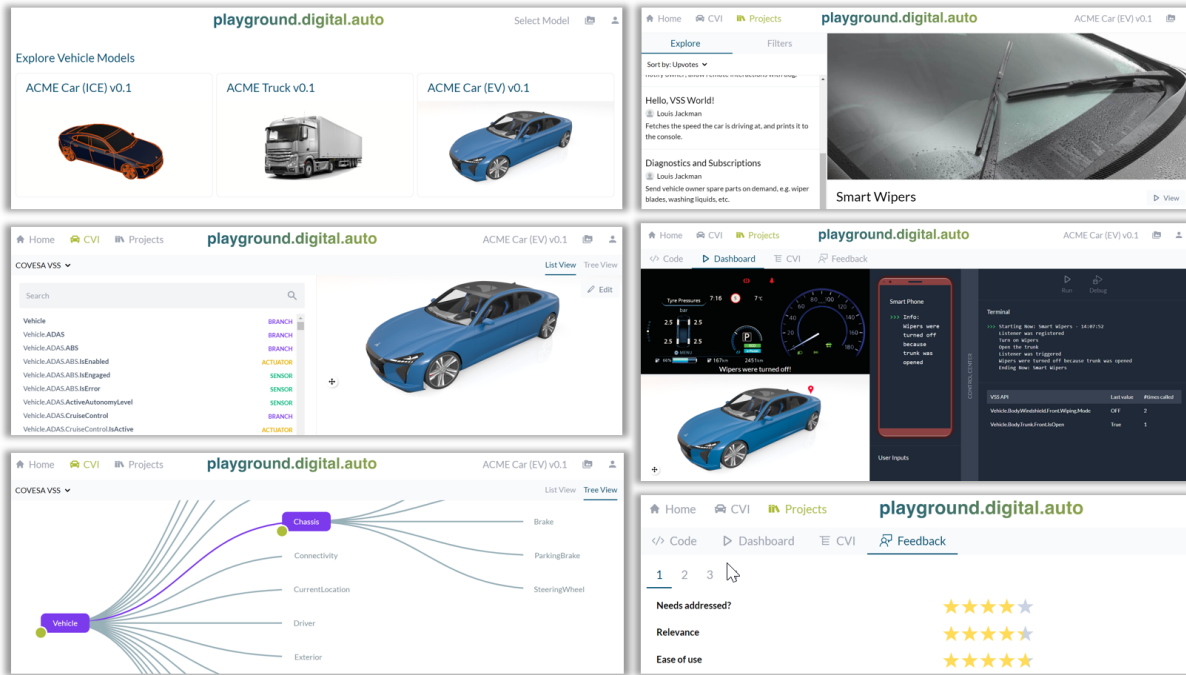
Use Case Domains

COVESA standards lend themselves to support a variety of use cases, especially in the areas of vehicle experience and value-added services. The figure below shows 8 potentially interesting clusters of use cases in these areas.

Vehicle Experience			
Smart HMI Explore use cases for deeper integration of the HMI with the vehicle Pot. Sponsors: OEMs, smart phone vendors	**Passenger Welcome** Optimizing the passenger weclome sequence, including light show, seats, HVAC, sound Pot. Sponsors: 3D PLM companies	**Audio Analytics** Support ADAS functions (not ASIL!), e.g. disabling noise cancellation in case of alarm; also: preventive maintenance Pot. Sponsors: OEMs, in-car sound experts	**Smart Wipers** Integration of wipers with vehicle experience, on-board cameras, etc. Pot. Sponsors: OEMs

Value-Added Services			
Smart Charging Improve the charging experience, including energy and route management Pot. Sponsors: Utilities	**Smart Home Integration** Innovative use cases for integrating smart home and vehicle experience Pot. Sponsors: Smart Home players	**Smart Insurance** Explore performance-based insurance models (UBI & beyond), for cars and/or trucks Pot. Sponsors: Insurance companies	**Subscription Business** Utilize vehicle sensors to identify areas for replenishing wiper fluids & other wearing parts on demand Pot. Sponsors: After-market players

The Smart HMI including the Instrument Panel is currently heatedly discussed, after the announcement of Apple to publish a new version of Apple CarPlay which promises much deeper integration with the vehicle.[1] Naturally, it should be interesting to see how COVESA standards can be utilized in this domain.

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[1] https://www.theverge.com/2022/6/6/23156741/ios-16-carplay-apple-wwdc-hvac-deeper-integration

The Smart Charging topic was recently launched as another COVESA BoF initiative, which promises rich benefits to OEMs. The digital.auto initiative could support this topic very well.

Of course, there are many other interesting areas and ideas, including

- Performance unlocking, e.g. additional horse powers for a weekend in the mountains
- Feature-as-a-Service, e.g. seat-heating-on-demand
- Community-based parking, e.g. using ultra-sound sensors to identify available parking spots
- Smart Trailers, standardization of interfaces for trailers and outfitters / builders

It will be a question of identifying the right stakeholders for advancing this, and of course priorization based on market feedback. The following outlines the approach for executing this.

Building the COVESA playground community

The digital.auto initiative is proposing to explore the different use case areas outlined above through the concept of challenges. Each challenge is addressing a particular use case domain. Like a competition, a number of contenders are invited to submit proposals for concrete use case prototypes, implemented in the playground, utilizing a sub-set of COVESA standards. A jury can then select the most promising proposals, e.g. based on business value-add, technical excellence, and best use of COVESA standards.
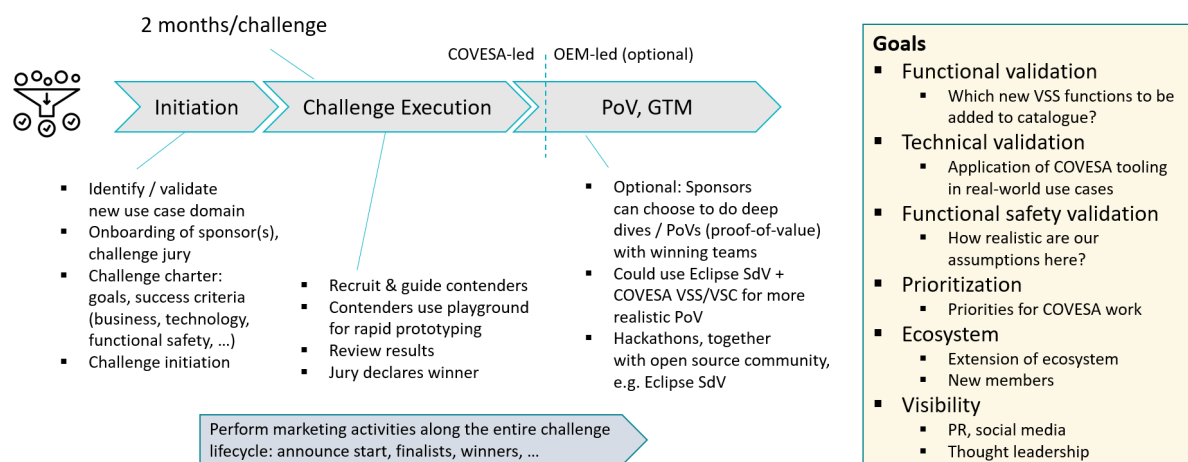
Benefits

OEMs benefit from this initiative by getting access to new ideas for making the Software-defined Vehicle a reality in different use cases domains. They can also get a better understanding for which APIs they will need in their future E/E architecture to support these use cases

Suppliers and other COVESA members can position their expertise and offerings in this context to add value for OEMs and the COVESA community.

COVESA as an organization generates value for its members by inspiring new use cases, gains access to the SdV community (e.g. Eclipse SdV), and receives continuous online feedback on its own standards, helping COVESA to become the leading provider of the most mature and up-to-date Common Vehicle Interface catalogue.