

COVESA

Accelerating the future of connected vehicles

VEHICLE SIGNAL SPECIFICATION (VSS)

ENABLING CROSS-INDUSTRY ECOSYSTEMS AND INNOVATION

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1. Introduction

Consumers expect the absolute best, safest, and problem-free content and experiences integrated into their digital world from their phones, smart home devices, computers, and electronic devices immediately as they become available. Why would they expect less from their vehicles? They will not. They expect vehicles to be integrated into their digital world and to be part of a greater mobility ecosystem, providing compelling, seamless digital experiences that can evolve.

To enable this, vehicle manufacturers must not think in terms of fixed predefined use cases bound to specific hardware. They must think in terms of what data, capabilities, functions, and flexible programming interfaces must be enabled to support compelling current experiences as well as those yet unknown future experiences. They must also think in terms of rapid, safe, secure, and frictionless updates to the content and experiences. They must understand connected vehicles are information platforms with diverse integration needs.

To truly address the challenges and realize the opportunities, there must be a common understanding of the data and interfaces between systems, in and out of the vehicle and across the broader mobility ecosystem. This common understanding of data is fundamental, foundational, and imperative to enabling great current and future digital experiences.

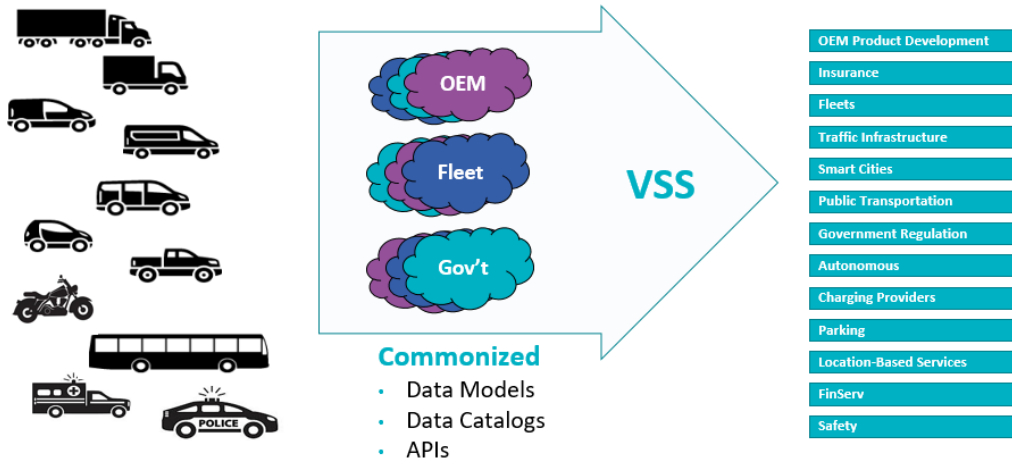
Embracing this need for commonality, the Vehicle Signal Specification is one way COVESA enables the digital platform for future automobiles.

2. Vehicle Signal Specification (VSS)

COVESA's [VSS](#), introduced in 2016, is a widely adopted, open data model created to normalize vehicle data (e.g., speed, tire pressure, interior lights, etc.). At its core, it is intended to be simple to understand and usable in a broad variety of contexts.

With the mature Vehicle Signal Specification and the Data Expert Group's guidance, COVESA strives to enable vehicle data interoperability, reduce vehicle data fragmentation, and facilitate collaboration with other industries (e.g., EV Charging, Safety, Maintenance, Fleet Operations, and Insurance) to accelerate new business opportunities and ecosystem growth.

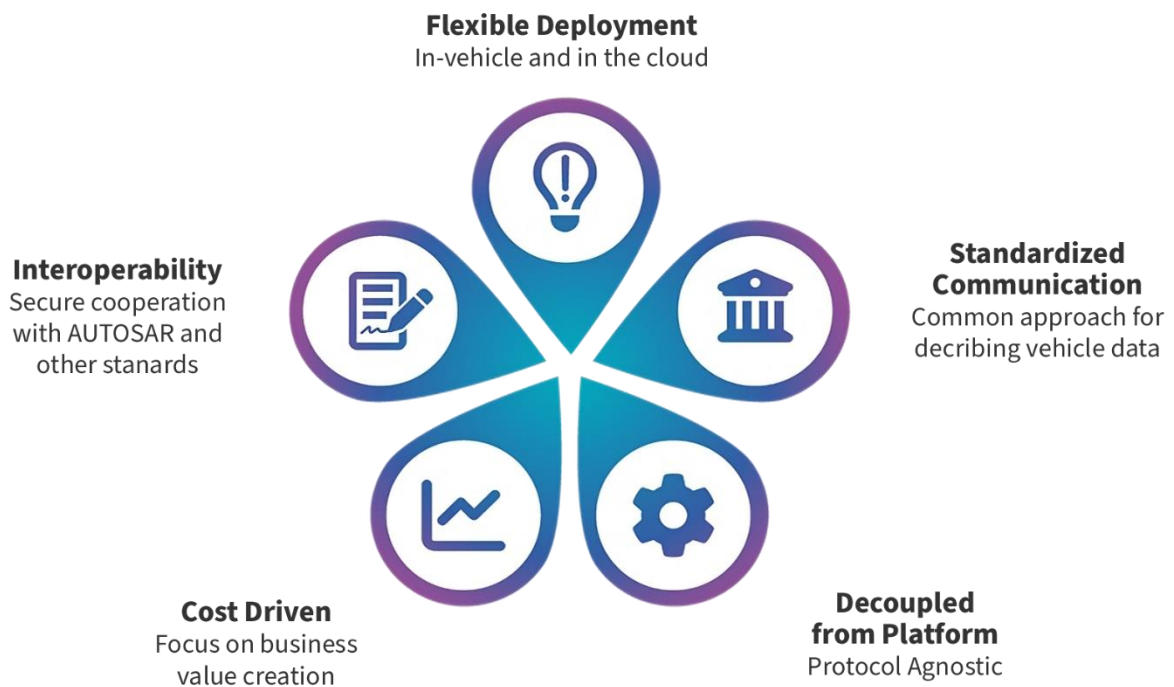




VSS commonizes diverse data sources enabling focus on business value.

2.1 VSS Key Design Principles

- Keep VSS simple, flexible, and easily understandable by machines and humans.
- Make VSS developer-friendly and extensible with industry-supported tooling.
- Support use in and out of vehicle, including a wide variety of data architectures, ensuring semantics remain the same throughout.
- Represent the vehicle domain/perspective in multiple contexts of the mobility ecosystem.
- Support a robust variety of vehicles, including consumer and commercial vehicles.
- Remain technology agnostic and support a variety of programming interfaces, protocols, and serialization formats.



2.2 Key Advantages of VSS



Enables Scalability

- Horizontal integration with adjacent industries leading to cross-industry solutions
- Vertical integration and scaling into the cloud
- Open collaboration and interchange of software components
- Eases data aggregation and cleaning
- Faster large-scale analytics
- Sharing of sophisticated tooling
- Application and code reuse



Supports Future Business

- Open-source collaboration leads to partnerships
- Big tech and cloud providers create new opportunities
- Increased access to normalized data leads to innovation and new opportunities



Faster Time-to-Market

- Faster product iteration
- Highly portable solutions
- Eases testing and evaluation of new software
- Reduces vendor lock-in
- Enables on-demand, real-time consumer personalization



Drives Innovation

- Concepts and ideas driven by merit
- Increased developer and entrepreneur access
- Enables focus from different industries

3. Join the COVESA Community

VSS is gaining rapid adoption, yet there is still plenty of opportunity to evolve the specification and associated tooling. VSS will only reach its full potential if it continues to be widely adopted by the automotive and adjacent industries. We invite you to [join](#) the COVESA community and [Data Expert Group](#) to collaboratively drive VSS forward.



For details about VSS:

- [Documentation](#)
- [Specification](#)
- [Resources](#)