COVESA

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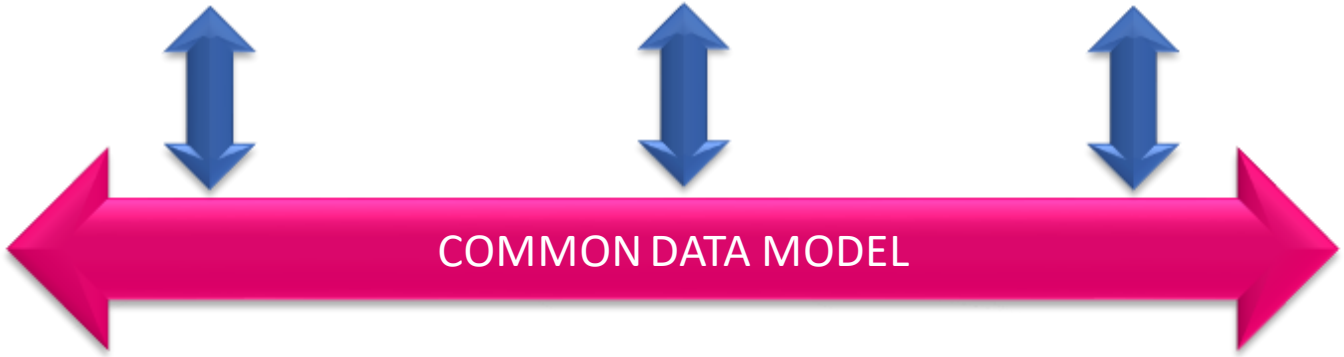
A Beginners Guide to Vehicle Signal Specification (VSS)

Opportunities for COVESA

Digital experiences in and around the vehicle must continually evolve

Vehicle experiences must integrate seamlessly with the consumer's digital world

Vehicles must increasingly be part of a connected mobility ecosystem of solutions and services



Enabling Data Sharing Across the Connected Value Chain

Vehicle Signal Specification

Benefits 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

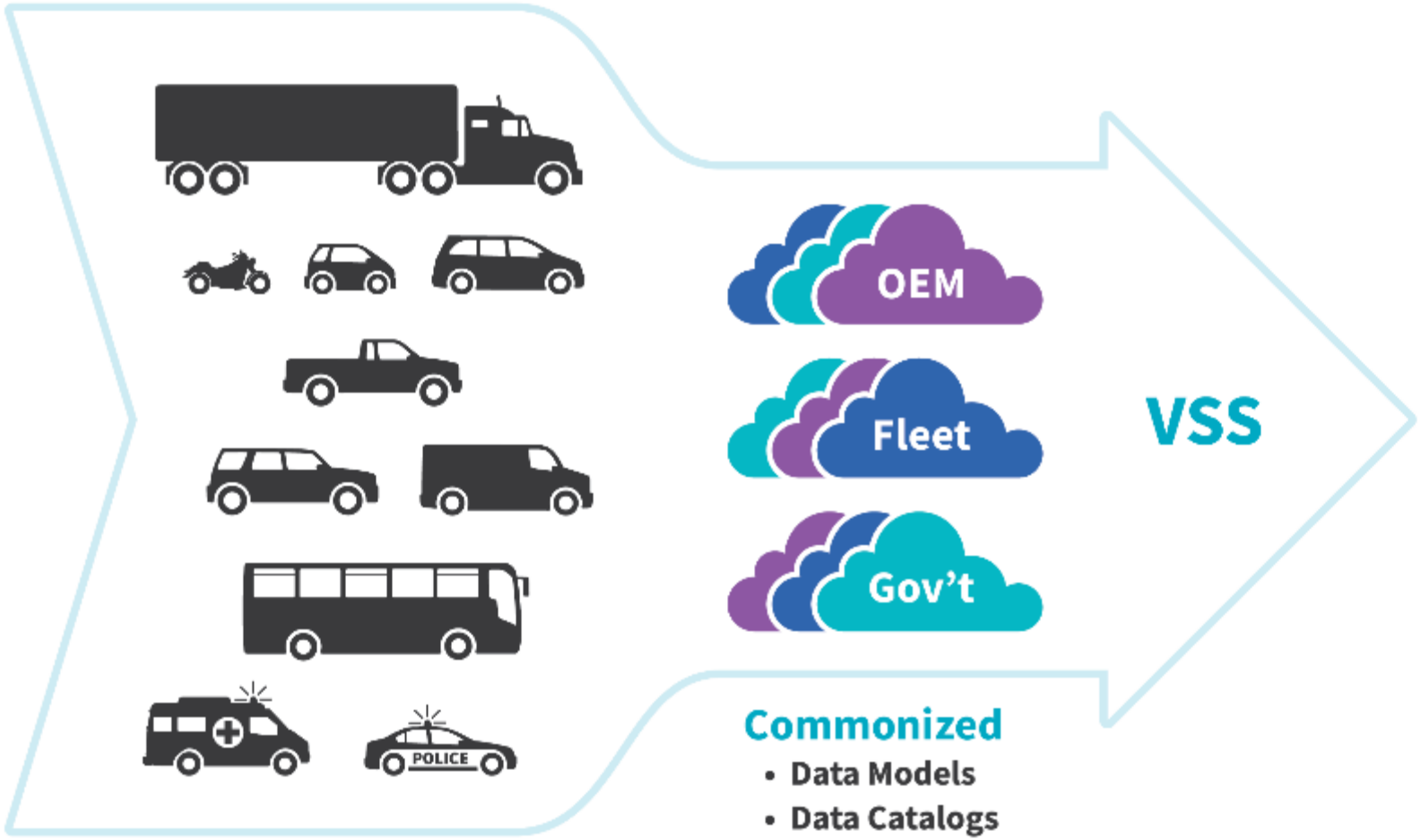
Faster Time-to-Market

- 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

Shared Data Enables a Variety of Current & Future Use Cases

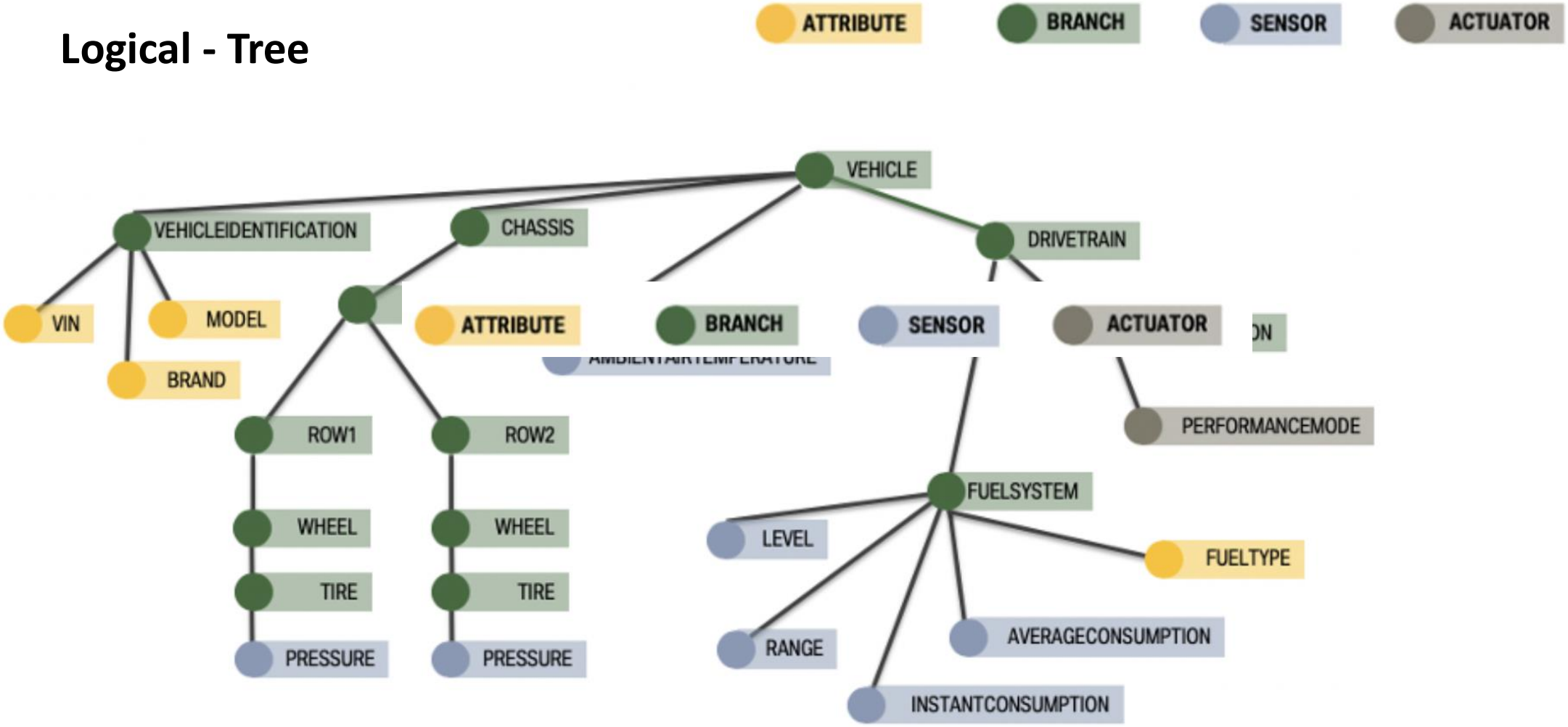


- OEM Product Development
- Insurance
- Fleets
- Traffic Infrastructure
- Smart Cities
- Public Transportation
- Government Regulation
- Autonomous
- Charging Providers
- Parking
- Location-Based Services
- FinServ
- Safety

VSS commonizes diverse data sources enabling focus on business value.

What Does VSS look like?

Logical - Tree



What Does VSS look like?

Actual - Human and Machine Readable YAML file

```yaml
Vehicle.Acceleration.Lateral:
  datatype: float
  description: Vehicle acceleration in Y (lateral acceleration).
  type: sensor
  unit: m/s^2
  uuid: 7522c5d6b7665b16a099643b2700e93c

Vehicle.Acceleration.Longitudinal:
  datatype: float
  description: Vehicle acceleration in X (longitudinal acceleration).
  type: sensor
  unit: m/s^2
  uuid: 3d511fe7232b5841be311b37f322de5a

Vehicle.Acceleration.Vertical:
  datatype: float
  description: Vehicle acceleration in Z (vertical acceleration).
  type: sensor
  unit: m/s^2
  uuid: a4a8a7c4ac5b52deb0b3ee4ed8787c59

Vehicle.AngularVelocity:
  description: Spatial rotation. Axis definitions according to ISO 8855.
  type: branch
  uuid: 1eef530a43de56aab665d2766483cde2
```

VSS is not…

- a protocol
- a serialization format
- an api specification
- a model for everything in the world
- limited to car, cloud, edge, or…
- a server specification

Adopters


BMW Group


Ford


BOSCH
Invented for life


GEOTAB


RENESAS


remotiveLabs


ETRI


MOBIS


SONATUS


rti


VOLVO


NXP
intellias


Open
Insurance


BlackBerry


MongoDB.


epam


DASSAULT
SYSTEMES

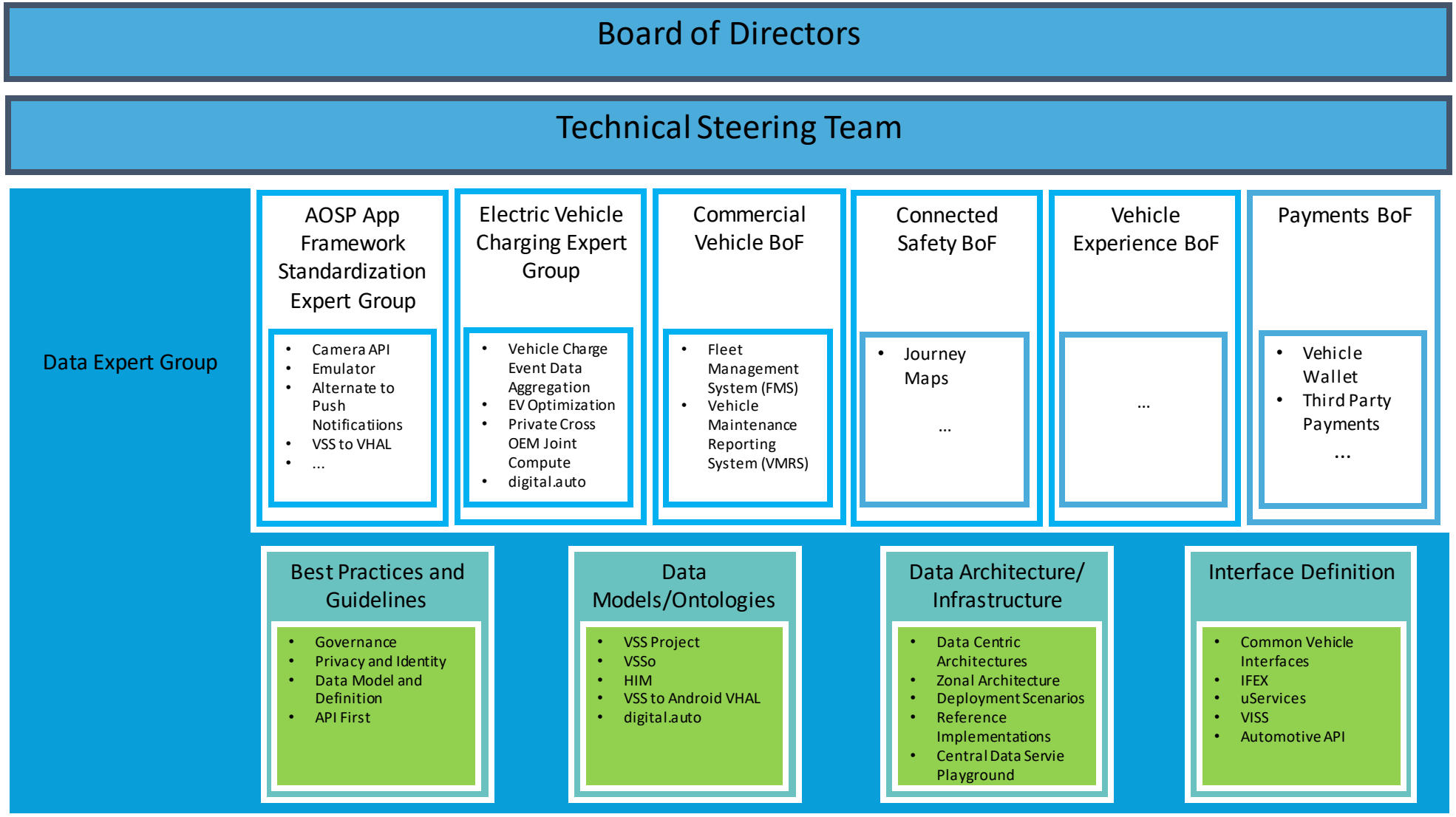

tieto EVRY


AWS IoT FleetWise
aws

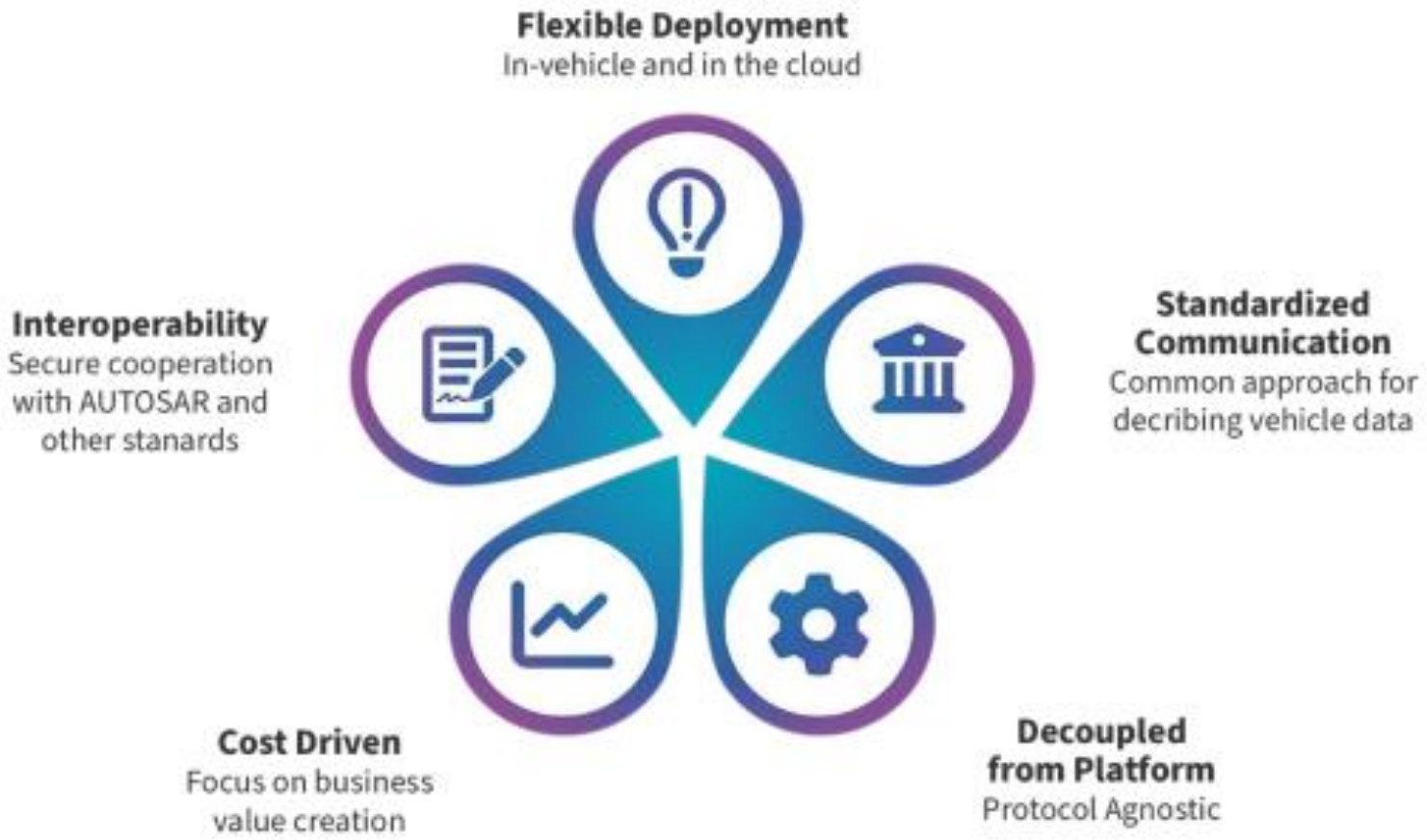

eSync
ALLIANCE


aicas

How COVESA Shepherds VSS



Design Principles of VSS



Future of VSS

- Integration into adjacent industry data models (manufacturing, insurance, EV Charging, etc.)
- Scaling while maintaining simplicity
- Shared knowledge across industry
- Usage in development environments

How to Engage in VSS?

- Join the weekly calls on Tuesdays at 4pm CET/ 10am ET / 7am PT(Community Calendar)
- GitHub (
  - https://github.com/COVESA/vehicle_signal_specification
  - Build it
  - Issues or Pull Requests
- Contact Chairs
  - Adnan Bekan (BMW)
  - Eric Jaegervall (Bosch)
- Contact Community Director
  - pboyes@covesa.global

Contribution Roles

Maintainer

- A Project Lead responsible for managing Github pull requests (contributions). They lead the group in deciding which contributions are committed to a repository or not.
- They can read, clone, and push to a repository. They can also manage issues, pull requests, and some repository settings.
- Ideally there are three Maintainers per project representing more than one organization

Contributor

- Anyone who contributes to the project. They propose and contribute to the repository through Github pull requests.
- Can read and clone a repository. Can also manage issues and pull requests.
- Anyone may become a Contributor.

Prerequisites

- Must have a GitHub account.

Simple Contribution Process

Expectations for Active Project

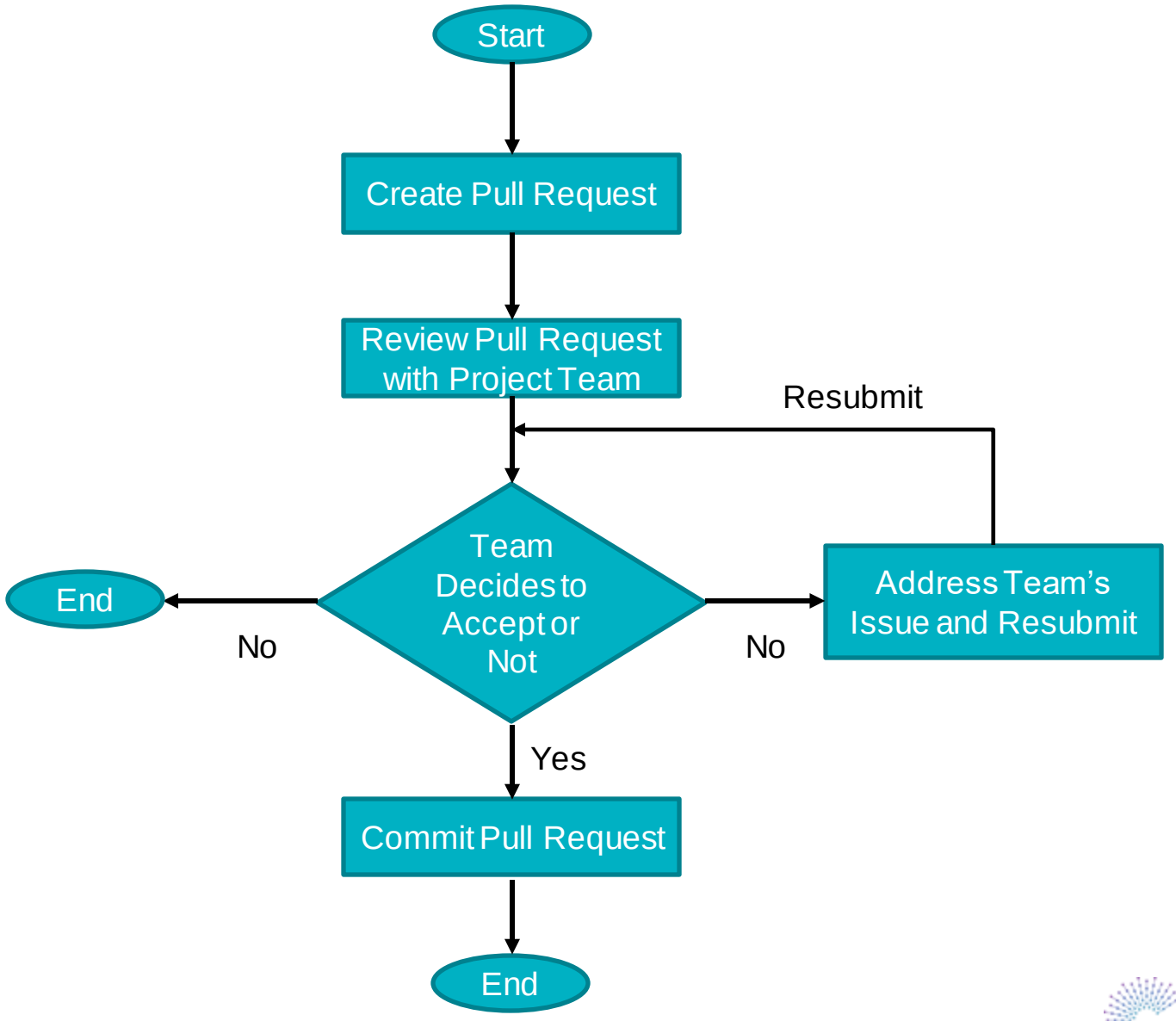
- Review with Feedback < **1 Week**
- Accept or Reject **< 3 Weeks**

Disputes

Project Team consists of active contributors attending review meetings

Disputes are mediated and decided by Maintainers.

If Maintainers are not able to mediate and decide, the dispute may be handled by a COVESA Board-appointed Technical Steering Committee



COVESA
Accelerating the future of connected vehicles

Resources

Documentation	https://covesa.github.io/vehicle_signal_specification/	Please read the documentation first. It answers most questions and points you to where to find other information.
Specification	https://github.com/COVESA/vehicle_signal_specification	To see specific nodes such as Cabin or Powertrain drill down into https://github.com/COVESA/vehicle_signal_specification/tree/master/spec
Tools	https://github.com/COVESA/vss-tools	Tools for building and processing VSS
GitHub Issues and Wiki	https://github.com/COVESA/vehicle_signal_specification/issues https://github.com/COVESA/vehicle_signal_specification/wiki	The team uses GitHub Issues and Wiki heavily
Vehicle Information Service Specification	https://github.com/COVESA/vehicle-information-service-specification	Server specification for accessing vehicle information represented by VSS

VSS Sessions at the AMM

The AMM is packed with VSS. Here are just a few on Wednesday, April 17

9:45 AM - 10:30 AM - Learning VSS: A Deeper Dive

12:05 PM - 12:30 PM - VSS - Enabling Data Intelligence

2:30 PM - 3:00 PM - autoverse: UX validation of the digital vehicle experience, enabled by COVESA VSS

2:45 PM - 3:30 PM - Commercial Vehicle BoF Working Session - Extending VSS to Commercial Vehicles (w/ VSS group)

3:30 PM - 4:00 PM - In-Vehicle API (joining forces with AUTOSAR)

4:00 PM - 4:45 PM - Towards a Vehicle DATA Specification

4:45 PM - 5:45 PM - The Automotive Knowledge Model (AKM)

Call to Action - Next Steps

Get Involved

Contribute technically or in a business session

Talk to one of the VSS Experts

Ask for demos

Read the VSS documentation

Join a VSS Meeting

Check out GitHub

Demo your implementation

Thank You

Visit: covesa.global

Join: covesa.global/join

Technical Participation: wiki.covesa.global

Contact Us: help@covesa.global