VSS or Ontology?
Use Cases and differences.

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VEHICLE SIGNAL SPECIFICATION (VSS)

TAXONOMY FOR ATTRIBUTES, SENSORS AND ACTUATORS OF A VEHICLE.
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VEHICLE

CABIN

DRIVETRAIN

CHASSIS

AXLE

WHEEL

TIRE

PRESSURE

ISOPEN

HASPASSENGER

DOOR

ISLOCKED

SEAT

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YAML SPECIFICATION PROs & CONS

- Easy to read, parse and understand.
- Tooling available and useable beyond vehicle signals.
- Only text, well maintainable in common development tools and version management.
- But, limited modelling capabilities with regard to relationships.
- Hard to refer from one domain to another.
PRACTICAL ISSUES USING YAML IN MULTI-DOMAIN SCENARIOS.
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APPLICATIONS
Rely on the same data structures.

VISS
Proprietary
Digital Twin

VEHICLE

CONTEXT, MEANING, EXPRESSIVENESS
HIGH
LOW

WISDOM
Action based on knowledge

KNOWLEDGE
Information in context

INFORMATION
Data in context

DATA
Observations
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Initial VSSo Development

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VSS

- v1.0 (2019)
- v2.0 (2021)
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VSSo was received as a member submission end of 2020.

The W3C Automotive and Transportation Business Group has begun working on it.
Current Vehicle Data
Find out what state a specific vehicle is in and how values of static and dynamic properties define a vehicle fleet.

Dynamic Vehicle Data over Time
Which observations have been made at which point of time? How a data stream develops over time? Can I act on it?

Interaction with Vehicle Data
Get specific values using a specific protocol of a specific data provider. Agreement on data exchange with unit type, etc.

A vehicle is defined by its static and dynamic vehicle properties.

Static and dynamic properties define a set of vehicles.

An observation is defined by the signals occurring at a certain time.

A requestor needs the contexts, their properties and information how to interact with them.
VEHICLE SIGNAL SPECIFICATION ONTOLOGY (VSSo)

Define the core **structural** concepts of VSS (e.g. Branch, Attributes, Sensors, etc.)

Use VSSo as domain ontology for other, widely adopted standards (SSN/SOSA).

Generate the data definitions from VSS based on the core ontology.

Link to other ontologies
VSSo: A Vehicle Signal and Attribute Ontology [link]
October 2018
Conference: 9th International Semantic Sensor Networks Workshop
At: Monterey, CA, USA

An Evolving Ontology for Vehicle Signals [link]
April 2021
Conference: 2021 IEEE 93rd Vehicular Technology Conference (VTC2021-Spring)

https://github.com/w3c/vsso
https://github.com/GENIVI/vehicle_signal_specification
https://github.com/danielwilms/vsso-demo
https://github.com/danielwilms/vsso-tools