

Action Name

Related Task/s

Harmonize definition of Operational Domains (ODs) and the vehicle designs (functionalities) needed for given ODs

Technology-related

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Why is this action important? 	Key uncertainties 	Action description 	Possible impacts 																					
<ul style="list-style-type: none"> Crucial for L4 (digital traffic lights), also needed for L3 (HD maps) All OEMs and TIERS are handling with this, very little unified Make OD explicit, and commonly valid along the OEM/ TIERS development chain involved in VD, so that it does not just remain an internal description within an OEM or a TIER. Makes infrastructure trade-offs more explicit and identify where PDI can bridge gaps in OD Support VD decisions when PDI functionalities can come as extension to fulfil needed functionality in considered OD For service description: need to be able to describe precisely the service offer Risk of non-harmonized ODs and VDs: Interaction between vehicle and OD relies completely on autonomy and sensing. Also, the confusion about OD remains and it is limited to a set of requirements on rain levels, type of roads, lighting levels, traffic conditions. No common basis for comparison of vehicle behavior. <p>Further arguments?</p>	<ul style="list-style-type: none"> What functionality is in vehicle, what is provided by infrastructure? What functionalities rely on both, in-vehicle and infrastructure ? What are the requirements and quality needs to PDI from vehicle? <p>Further key uncertainties?</p> <p>Specific key uncertainties for truck or urban?</p> <div style="background-color: #4CAF50; color: white; padding: 5px; text-align: center;"> Cause-effect or working mechanism  </div> <ul style="list-style-type: none"> Cause: Various development approaches by different stakeholders lead to lack of visibility + difficulties of testing vehicle designs against operational domains vehicle is made for. Working mechanism: Standardization of OD in relation to vehicle types, road types and automation approaches (start-ups, OEMs, researchers) Effect: Straight forward and aligned development targets to speed up innov. <p>Questions/ Feedback?</p>	<p>Operational domain (OD) is a description of the specific operating conditions in which the automated driving system is properly operating, including but not limited to roadway types, speed range, environmental conditions (weather, daytime/night time, etc.), connectivity and map access, prevailing traffic law and regulations, and other domain constraints.</p> <p>The vehicle designs (VD) (technology constraints for environmental conditions) are directly connected to the way the automated driving system works and the interaction with its environment and the infrastructure, which can be classified by Infrastructure Service levels for Automated Driving, ISAD.</p> <p>The action proposed should gather key stakeholders to generate a proposal for an harmonized and committed operational domain model. It should also work on defining and harmonizing an ontology to describe this model, that can be used in relation with AD vehicle types.</p> <p>What needs do be done out of your perspective?</p>	<p>If action is done:</p> <ul style="list-style-type: none"> Enable and speed up deployment → competitiveness Enable focused testing of capabilities → safety assessment Facilitate transparency of expected functionalities → acceptance, common reference for assessment <p>If action cannot be done:</p> <ul style="list-style-type: none"> Effectiveness of the interaction between VD and OD remains mostly articulated based on vehicle centric approach: embedded autonomy and sensing capabilities OD Knowledge itself remains partial, and most likely arbitrarily limited to a set of requirements on rain levels, type of roads, lighting levels, traffic conditions and rules. No common basis for comparison and efficient testing of vehicle behavior in each relevant ODs. <p>Further possible impacts?</p> <div style="background-color: #4CAF50; color: white; padding: 5px; text-align: center;"> Stakeholders  </div> <table border="1"> <thead> <tr> <th>Actor</th> <th>Task</th> <th>Role</th> </tr> </thead> <tbody> <tr> <td>EU (DGGrow, JRC)</td> <td>Define common approach and description of OD</td> <td>Building on top of Headstart</td> </tr> <tr> <td>NHTSA</td> <td>Peer-review OD definition; feedback on proposals</td> <td>External advisor</td> </tr> <tr> <td>OEMs</td> <td>Bring in industrial expertise and relevance</td> <td>Car, truck, shuttles designer</td> </tr> <tr> <td>UNECE</td> <td>Later include OD in type approval (Low priority)</td> <td>Type approval</td> </tr> <tr> <td>Road authorities / traffic authorities</td> <td>Test and operate OD measures (Depending on country)</td> <td>Road operator</td> </tr> <tr> <td>ISO/TC 22/SC 33 working group WG 9 on the topic of scenario based safety validation</td> <td>Include OD in scenario work</td> <td>Standardization</td> </tr> </tbody> </table> <p>Further stakeholders?</p>	Actor	Task	Role	EU (DGGrow, JRC)	Define common approach and description of OD	Building on top of Headstart	NHTSA	Peer-review OD definition; feedback on proposals	External advisor	OEMs	Bring in industrial expertise and relevance	Car, truck, shuttles designer	UNECE	Later include OD in type approval (Low priority)	Type approval	Road authorities / traffic authorities	Test and operate OD measures (Depending on country)	Road operator	ISO/TC 22/SC 33 working group WG 9 on the topic of scenario based safety validation	Include OD in scenario work	Standardization
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Evaluation criteria (example) 		Key references 																						
<ul style="list-style-type: none"> Safety and reliability of vehicle in OD (e.g. High dependability in a semi-continuous OD) Explainability of OD and vehicle behavior (e.g. Understanding and expectation of driver match behavior) <p>Further evaluation criteria?</p>		<ul style="list-style-type: none"> OEMs: White paper “Safety first for automated driving” <p>Further key references?</p>																						