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Considerations on a new approach for the ADS Regulation

- Update -

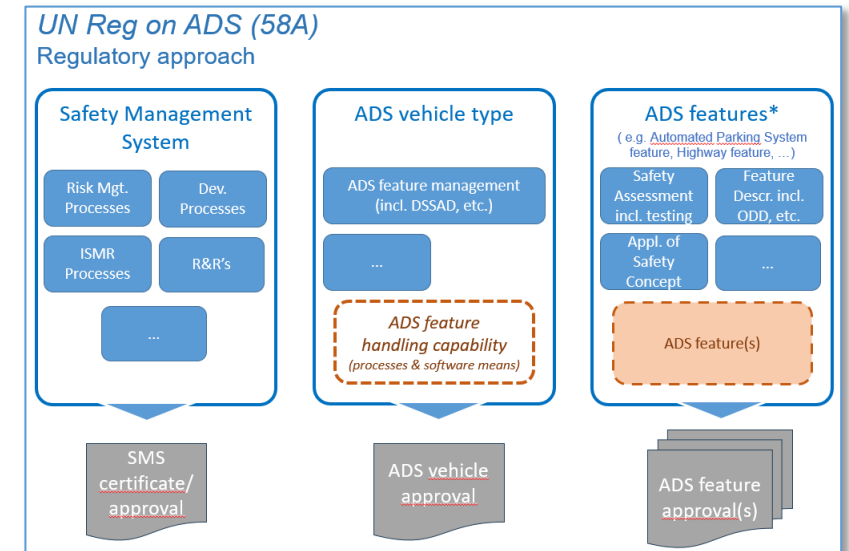## *Benefit of the new Regulation Approach*

- Modification of registered vehicles, e.g adding new features via software updates (w/o modifying vehicle registration data)
     => Important for ADS deployment

- Allow smooth integration of ADS features into ADS vehicle types
     => e.g. also in cases of different manufacturers (vehicle vs feature)

- Reduce administrative burden
     => Double work to be avoided

- Improved readability and clustering of requirements
     => Manufacturer/Organization vs. Product related elements
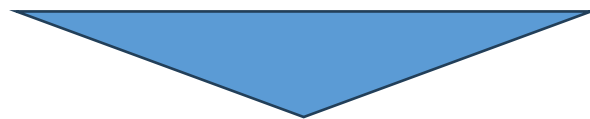
The new Regulation Approach structure supports above mentioned aims

Possibilities the new approach offers

- Basic split into three parts with dedicated approvals/certificates

  - SMS: all manufacturer capabilities incl. processes, etc. are included in this part/ module (similar approach as for CSMS / UN R 155, and SUMS /UN R 156)

  - ADS vehicle type: description of the ADS relevant architecture (hardware)

  - ADS feature: Assessment of the ADS application (linked to S/W) for a dedicated ODD and to be operated on a given ADS vehicle type (hardware)

UN Reg on ADS (58A)
Regulatory approach

Safety Management System	ADS vehicle type	ADS features* (e.g. Automated Parking System feature, Highway feature, …)
Risk Mgt. Processes / Dev. Processes	ADS feature management (incl. DSSAD, etc.)	Safety Assessment incl. testing / Feature Descr. incl. ODD, etc.
ISMR Processes / R&R's	…	Appl. of Safety Concept / …
…	ADS feature handling capability (processes & software means)	ADS feature(s)
SMS certificate/ approval	ADS vehicle approval	ADS feature approval(s)

Where might requirements end up?

ADS-04-09

- Purpose
- Scope
- Definitions
- [Documentation/General] Requirements
  - General
  - Safety Management System
  - Safety Case
    - Demonstrate ADS meets requirements
    - Demonstrate ADS is free of unreasonable risk
  - Reporting
  - Other Documentation
- Requirements/Specifications
  - SMS processes applied to ADS
  - ADS performance of the DDT
  - Absence of unreasonable risk
  - ADS interaction with users
  - Cybersecurity
  - Data storage system
  - Software updates
  - Credibility & suitability of tools (Test Environment)
  - Monitoring of in-service performance
  - Reporting
- Compliance Assessment
  - Audit of SMS
  - Safety Case (Claims, Arguments & Evidence are sound & complete)
  - Reporting system
  - Conditions for Track and Real-world testing
  - Verification tests (reproducibility of some safety case evidence)
  - Other tests (minimum mandatory/targeted)
- Annexes

	General	Management System (Manufacturer Capability)	ADS Vehicle Type (Architecture)	ADS features (Application)	Comments
Purpose	X				
Scope	X				
Definitions	X				
[Documentation/General] Requirements					
General					to be clarified
Safety Management System		X			
Safety Case				X	
Demonstrate ADS meets requirements				X	
Demonstrate ADS is free of unreasonable risk				X	
Reporting		X			
Other Documentation		(X)	(X)	(X)	needs clarification on details
Requirements/Specifications					
SMS processes applied to ADS			X	X	About process application?
ADS performance of the DDT				X	
Absence of unreasonable risk				X	
ADS interaction with users				X	
Cybersecurity		(X)	X	(X)	
Data storage system			X		
Software updates		(X)	X	(X)	
Credibility & suitability of tools (Test Environment)		X			
Monitoring of in-service performance		X			
Reporting		X			
Compliance Assessment					
Audit of SMS		X			
Safety Case (Claims, Arguments & Evidence are sound & complete)				X	
Reporting system		X			
Conditions for Track and Real-world testing				X	
Verification tests (reproducibility of some safety case evidence)				X	
Other tests (minimum mandatory/targeted)				X	
Annexes					As relevant

+ Administrative chapters (considering needs for GTR and UN R)
+ Additional requirements for the ADS vehicle and ADS feature, e.g. on compatibility of ADS vehicle type and feature

Elements to be considered in context of the new Regulation approach
(if not already included)

- Requirement for ADS vehicle type to have a (software) mechanism implemented to ensure that only type approved ADS features (for the considered vehicle type) can operate on the vehicle

- Documentation requirement for the ADS vehicle type to describe the ADS architecture (ADS relevant hardware)

- Requirement for the ADS feature(s) to have a (software) mechanism implemented to identify the valid ADS vehicle type the feature can operate on

Thank you