

Update on Document Structure and Harmonization

Background

- Provisional approval of Safety Case approach at the 4th IWG in London and updated document structure
- OPI streams modified their sections accordingly
 - Some re-ordering required
 - In some cases, requirements could fit in multiple OPI streams
 - Need for harmonization between OPIs
- OPIs held a few meetings to discuss how to harmonize location of requirements and purposes of sections
 - Modifications to the structure based on progress in OPI streams & these discussions
 - Identification of overlapping areas and moving text/use of references where appropriate

Proposed changes to structure

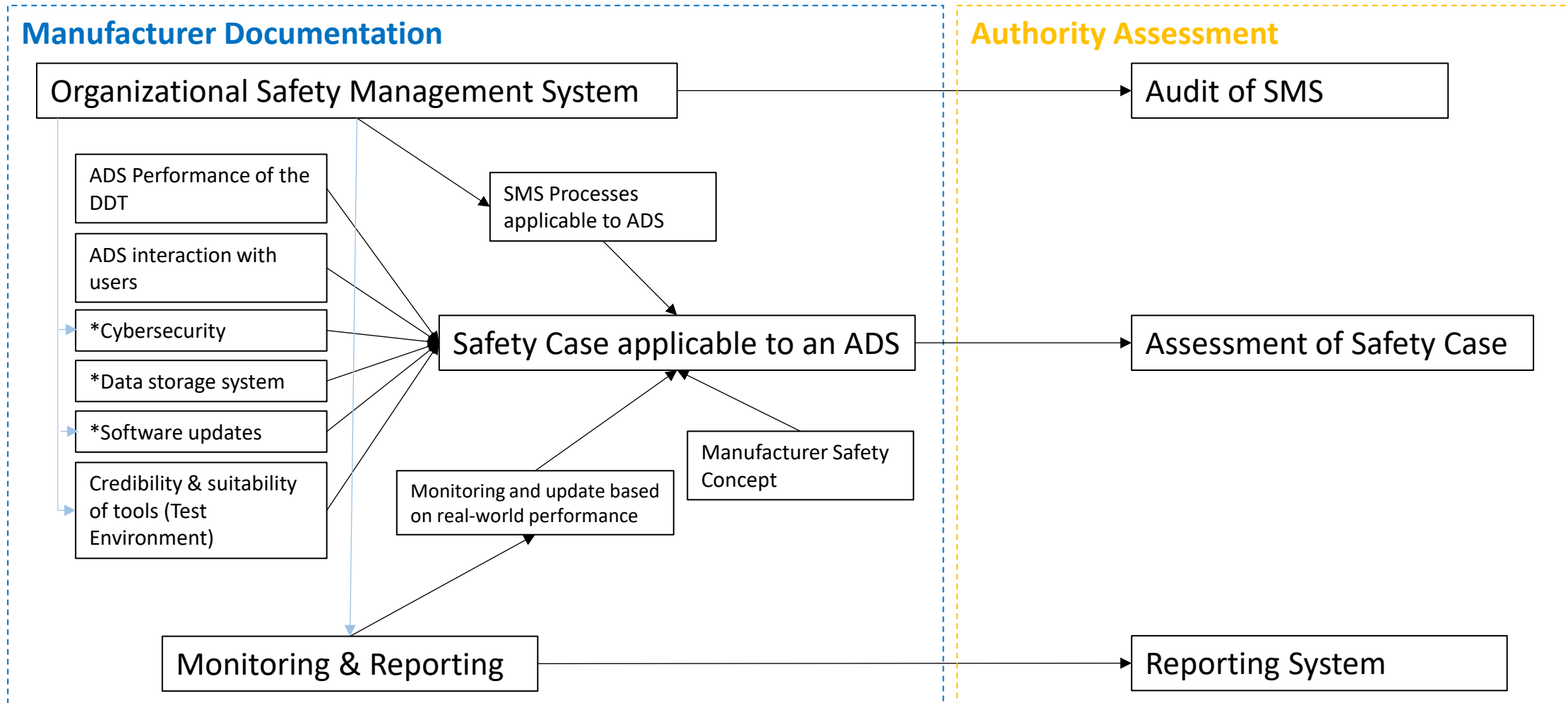
New proposed (additions in green)

- Purpose
- Scope
- Definitions
- **Manufacturer Documentation** Requirements
 - General
 - **Organizational** Safety Management System
 - Safety Case **Applicable to an ADS**
 - **Monitoring**
 - Reporting
 - **Credibility & suitability of tools (Test Environment)**
 - Other Documentation
- **ADS** Requirements
 - **General Requirements**
 - ADS performance of the DDT
 - ADS interaction with users
 - Cybersecurity
 - Data storage system
 - Software updates
- Compliance Assessment
 - Audit of SMS
 - **Assessment of** Safety Case
 - Reporting system
- Annexes

Previous (removals in red)

- 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

Linkage between sections



Note: Sections with * have not yet been addressed

Internal structures – SMS & Audit of SMS

- Organizational Safety Management System
 - Safety Management System
 - Safety Policy
 - Risk Management
 - Design and Development Process
 - Production Process
 - Post deployment process
 - Safety Assurance Process
 - Safety Promotion Process
- Audit
 - Audit of the SMS
 - Objective of the SMS audit
 - The role of the auditor

Internal Structures – Monitoring & Reporting & Reporting System assessment

- Monitoring & Reporting
 - General Requirements
 - Monitoring requirements
 - Reporting requirements
- Reporting System Assessment
 - Pre-Deployment
 - Review of documentation
 - Monitoring Capability
 - Reporting Capability
 - Post Deployment
 - Reception of information
 - Review of information
 - Review of data processing
 - Confidentiality
 - Verification of information
 - Recommendations

Internal Structures – Safety Case & Assessment of SC

- Safety Case Applicable to an ADS
 - General Description
 - Safety Concept and Other Required Documentation
 - System-Level
 - Feature-Level
 - Verification, Validation and Acceptance Criteria
 - Presentation of Safety Case
 - General requirements
 - Claims
 - Argumentation
 - Evidence
 - Self-Assessment
- Assessment of Safety Case
 - General Assessment requirements
 - Safety Case Completeness
 - Safety Case Robustness
 - Assessment of testing activities
 - [Verification] testing
 - Safety Case Assessment Report
 - Assessor Competence
 - Assessor independence

ADS Requirements vs Safety Case

- The manufacturer needs to demonstrate through its safety case that:
 - The system is free of unreasonable risk
 - The system meets all the ADS requirements
- In some instances, the manufacturer must provide additional information related to some requirements as part of its safety concept
 - The ADS requirements state what the system needs to do
 - E.g. –The vehicle controls dedicated to the ADS shall be clearly identified and distinguishable to accommodate only the appropriate interactions.
 - The Safety Concept outlines how certain aspects of the system were designed and how the system is intended to function
 - E.g. – The manufacturer shall describe the methods of activating, overriding, or deactivating the ADS feature [...]

Internal structures ADS requirements - 1

- ADS Performance of the DDT
 - ADS Performance of the DDT under Nominal Traffic Scenarios
 - ADS Performance of the DDT under Critical Traffic Scenarios
 - ADS Performance of the DDT under Failure Scenarios
 - ADS Performance of the DDT at ODD Boundaries
 - Minimal Risk Condition Requirements
- ADS Interactions with Users
 - General requirements
 - ADS features that allow a user to take over manual control of the DDT
 - General Requirements
 - Requirements on ADS feature activation
 - Requirements on ADS feature deactivation to manual driving
 - ADS features that do not allow a user to take manual control of the DDT

Internal structures ADS requirements - 2

- Credibility and Suitability of Testing
 - Simulation Toolchain(s) Credibility Requirements
 - Simulation Toolchain(s) Management requirements
 - Simulation Toolchain(s) Data Management requirements
 - Simulation Competency requirements
 - Simulation Toolchain(s) Release Management requirements
 - Simulation Toolchain(s) requirements
 - Description of the Simulation Toolchain(s)
 - Simulation Toolchain(s) Assumptions, known Limitations, and Uncertainty Quantification
 - Simulation Toolchain(s) scope
 - Simulation Toolchain(s) Criticality analysis
 - Simulation Toolchain(s) Verification requirements
 - Simulation Toolchain(s) Code Verification requirements
 - Simulation Toolchain(s) Calculation Verification requirements
 - Simulation Toolchain(s) Sensitivity Analysis requirements
 - Simulation Toolchain(s) Validation requirements

Note: Some internal structures are subject of discussions and could change

Section yet to be addressed but included as placeholders

- Cybersecurity
- Software Updates
- Data Storage System
- Annexes