ADS System
Market access requirements



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UN-R185 / UN-ADS – Automated Driving Systems

Global approval framework for safe deployment of Automated Driving Systems

1 Objective & Regulatory Scope

Key message

UN-R185 establishes a globally harmonized approval framework for ADS and driverless vehicle technologies.

Regulatory scope

- Applies to type approval of vehicle categories M, N, L6 and L7.
- ADS includes vehicle hardware and software capable of performing the entire Dynamic Driving Task, DDT.
- Covers ADS features with and without fallback user:
  - ADSF-1: fallback user required
  - ADSF-2: no fallback user required
- ADS safety level shall be at least equivalent to a competent and careful human driver and free from unreasonable risks.

UN-R185 → ADS Type Approval → Safety Assurance → Road Operation

2 Safety Assurance & Implementation

Key message

UN-R185 shifts ADS regulation towards structured safety assurance, lifecycle governance and operational monitoring.

Core requirements

- Safety Management System, SMS, required across the ADS lifecycle.
- Structured Safety Case demonstrating compliance and freedom from unreasonable risks.
- Safety Case follows Claims, Arguments and Evidence logic.
- Validation through simulation, track testing and real-world trials.
- Continuous performance monitoring and reporting during operation.
- DSSAD supports traceability of Automated Driving operation.

Development → SMS → Safety Case → Validation → Approval → Monitoring

[1]ADS = automated driving systems
[2]DSSAD = data storage system for automated driving
[3]DDT = dynamic driving task

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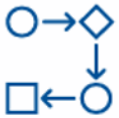
Manufacturer requirements



Minimum requirements for the manufacturer's safety management system

A Safety Management System (SMS) is a systematic approach to managing safety.

- Organisational safety policies, principles and culture
- Processes for risk management and ADS design and development
- Personnel competencies



Minimum requirements for credible testing environments

Ensure that the physical test environments and toolchains (e.g. virtual testing toolchains) are appropriate for their use.



Minimum requirements for providing a valid ADS safety case

Structured presentation of claims supported by SMS and testing outcomes that the ADS meets or exceeds the requirements of the regulation and is free from unreasonable risks to the ADS vehicle user(s) and other road users.



Minimum requirements for in-service monitoring and reporting

Establishes minimum requirements for capabilities to monitor the performance of ADS in use and establishes requirements for reporting on ADS safety performance.

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Compliance Assessments

Audit the Safety Management System	Verify compliance with SMS requirements. A single SMS may cover multiple ADS. Periodic certification anticipated
Assess test environment	Verify the credibility of the manufacturer's ADS testing organisation and management, including application of SMS outcomes to ensure effective testing of the ADS.
Assess safety case	Assess the safety case for completeness and robustness, and that each requirement of the regulation is addressed within the safety case. Assess that the ADS is free from unreasonable risk.
Perform confirmatory testing	Confirm that the evidence provided by the manufacturer accurately represents the ADS performance.

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ADS System Market deployment requirements

From Technology Readiness to Commercial Reality → Industry Drivers



Applications with highest viability:

- Robotaxi and Urban public transport, First/Last Mile
- Airport vehicles (shuttles, tractors, etc.)
- Business parks and Port operations
- Autonomous Cargo and Hub-to-hub logistics
- Rual Mobility and Demand-responsive transport

Deployment Ecosystem and relevant Stakeholders:

- Cities & Municipalities
- Public transport operators
- Logistics operators
- Police, First Responders, civil defense

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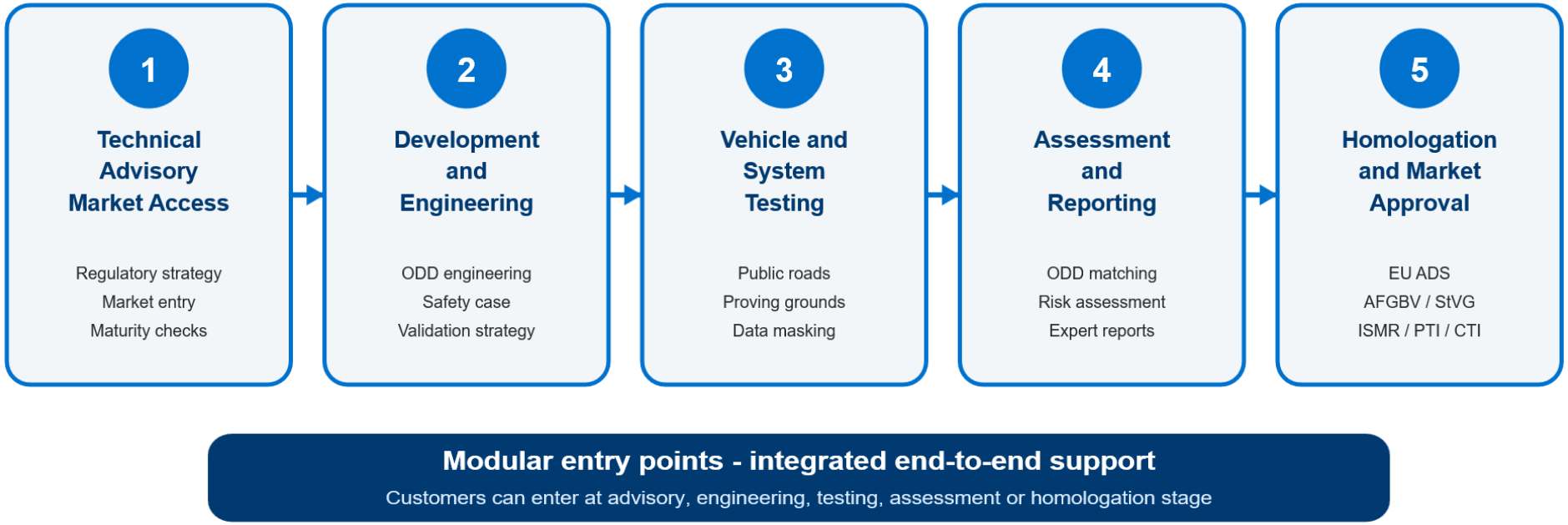
connected service clusters across the ADS Ecosystem



- ✓ **support already during development phase (left side V-model)**
- ✓ **Supports customers in understanding regulatory requirements, defining approval routes, preparing market entry, evaluating technical readiness and aligning ADS projects with operational and safety expectations**
- ✓ **roadmap consulting for ADS projects**
- ✓ **Advisory on international, European and national regulations**
- ✓ **Advisory on standards for ADS IDS and AI**
- ✓ **Approval-pathway definition**
- ✓ **Market-access gap analysis**
- ✓ **Preparation and Coordination of communication with authorities**

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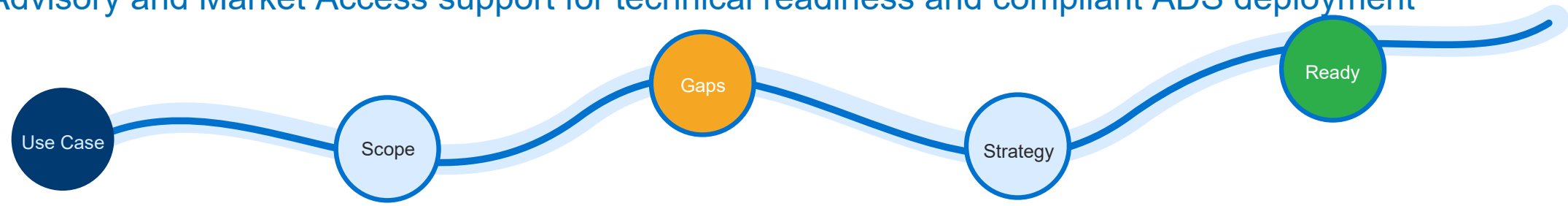
Advisory and Market Access support for technical readiness and compliant ADS deployment



Regulatory & Market Access Advisory

- **Regulatory Roadmap** definition for ADS projects
- Advisory on international, European and national **Regulations** and standards for ADS and AI
- **Approval-Pathway** definition
- Market-Access **Gap Analysis**
- Preparation and **Coordination** of communication with authorities

Readiness, Maturity & Operation Advisory

- Evaluation of System & project **framework**
- System maturity & market **readiness**
- Base vehicle / AD-Kit / Operation match **advisory**
- KPI & open-point identification

Data Protection, Sensor Data & GDPR Conformity Advisory

- Privacy data protection advisory & project process definition
- **GDPR-compliant** data collection preparation & Support for international data sharing within projects
- **Data processing** support for road-testing & image-processing for Anonymization of Sensor data
- **AI based anonymization**

USP → Reduce regulatory uncertainty, identify gaps early and establish a legally robust basis for ADS deployment

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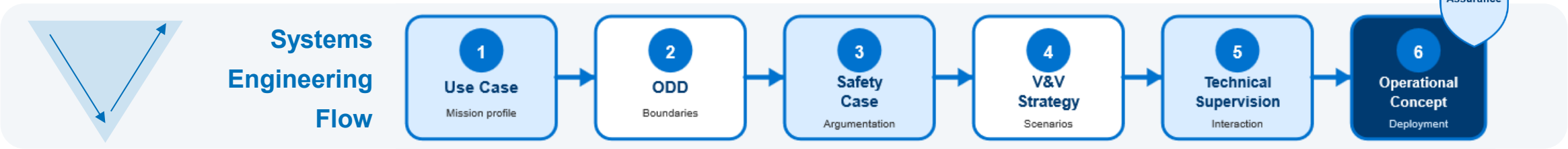
2: Development & Engineering to translate ADS concepts into safe, usable &approval-ready solutions



ADS Roadmap, Use Case & ODD Engineering

- System development and **integration Roadmap**
- Stage-gate support
- Use-case and **ODD definition**
- Infrastructure requirements based on ODD for safe deployment

Safety Case & Functional Safety & Safety assurance

- Safety case **review**
- Functional safety **advisory** and assessment
- Minimum risk maneuver **strategy support**
- driver & supervision intervention
- Safety **documentation** & witness testing

Validation Strategy, Scenario Definition & Toolchain Support

- Validation/Verification strategy advisory
- Scenario-based V&V concepts
- **Test scenario definition** (TÜVR database)
- Software & Simulation **credibility criteria**

Technical Supervision & Operational Concept Engineering

- Technical Supervision **operational concept**
- Interaction concepts
- Equipment and depot requirements
- **Stakeholder management**
- Incident management process support

USP → Create a structured development path and link use case, ODD, infrastructure, validation and, safety evidence, validation strategy, approval requirements and operational readiness

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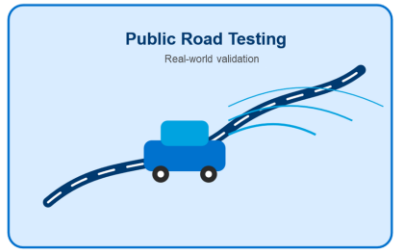
3: Vehicle & System on Public-road & proving-ground testing for functional & performance evaluation

Integrated Test Support Layer

Test Planning | Logistics & Drivers | Equipment Support | GDPR Data Masking





Public Road Testing for L2/L3/L4

- Testing approval support
- **Route definition & road test organization**
- Country-specific adaptions
- **Vehicle preparation & instrumentation**
- Trained-driver & administrative support

Test Planning, Logistics & Operational Test Support

- **Test plans** and campaign advisory
- Vehicle transport and logistics
- **Equipment coordination**
- Troubleshooting support Measurement & testing equipment
- **GDPR conform and Secure data processing and transmission** to customer

Public Road & Proving Ground organizational

- Vehicle preparation & instrumentation
- **Training for Equipment & special vehicle operation**
- Safety driver training
- Test driver training
- **All vehicle types**

Public Road & Proving Ground Testing

- Regulatory, standard or customer specification
- **Functional & performance** testing
- **NCAP compliance** testing
- System assurance & FuSa
- **Positioning accuracy**
- Driver/customer experience

USP → Generate objective evidence for functional performance, release readiness and approval-oriented validation & verification.

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Independent assessments and expert reports

Output

Suitability Statement + Risk Mitigation + Expert Report



Conformity & Maturity Assessment for L2/L3/L4

- **Comparison** of communicated status with actual evidence
- Documentation & **test result review**
- Regulatory **compliance**
- Disengagement review
- **Gap analyses**

Deployment Area & Operation Concept Assessment

- Area assessment execution and report creation
- Suitability evaluation
- **ODD matching**
- Assessment of technical supervision
- **Incident report** assessment
- National regulation **conformity**

Independent Safety Assessment & Expert reporting

- Safety Case, FuSa assessment
- **System assurance** review
- Expert statements
- Independent **safety reports**
- Risk assessments
- Vehicle / System **witnessing**

Test Site/Track Assessment

- Inspection of test sites
- Track segment assessment
- **Document and process review**
- Gap & risk identification
- **Optimization** roadmap

USP → Provides independent feedback to ADS maturity, approval & operational readiness, safety evidence

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WVT[1]- & German AFGBV approval and local / non-EU market approval support



USP → Provides structured approval support for ADS applications from evidence to continuous operational safety

[1]WVT = whole vehicle type approval
[2]ISMR = in service performance monitoring & recording
[3]PTI/CTI = technical inspection

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Local market approach | ROADMAP to enable local industry for automated services

Automated Driving System

- Base Vehicle
- AD Kit with Sensor System
- AI

Infrastructure

- Roadway Conditions
- intelligent Elements
- connectivity
- Stakeholder definition

Supervision

- Information / Data Sharing
- Remote access
- Agil interaction
- Stakeholder involvement

enable the market for real Automated & AI Driven Mobility



Local Regulation and Rules for testing and certification

Authorities, policymakers, Mobility Provider / public transportation Operators

Education / Consultation

Functional / Technical

Based on:

→ International Best practice

→ International standards

End-to-end assurance for Automated Driving Systems

Concept Advisory → Develop Engineering → Test Validation → Assess Reporting → Approve Homologation → Operate Monitoring

ADS Lifecycle Coverage

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Thank you for your attention

Success Factors for ADS scaling in Europe:

1. Regulatory readiness from day one
2. Strong safety case development
3. Robust SMS implementation
4. Local partnerships and stakeholder engagement
5. Clearly defined technical & operational model

Stefan Heuer | Senior Vice President Mobility APA

Email: stefan.heuer@tuv.com













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