**Add value.
Inspire trust.**

Cybersecurity assessment for connected and automated vehicles

Protect your passengers and your business

Your challenges

Automated and connected vehicles (AVs) have a complex architecture, as they integrate multiple automated driving functions and a wide variety of communication interfaces. An external attacker successfully compromising such functions not only endangers the safety of road users, but can also cause serious privacy, financial and operational harm to businesses and passengers.

Why is cybersecurity for connected and automated vehicles important?

With increased vehicle connectivity the potential risk of cyberattacks escalates. To take this into account, TÜV SÜD has extended its approach to include cybersecurity in the evaluation of vehicle prototypes. This complements the safety assessment by ensuring that the threats impacting the safety and privacy of road users, as well as the operator's business models and intellectual property, are well mitigated.
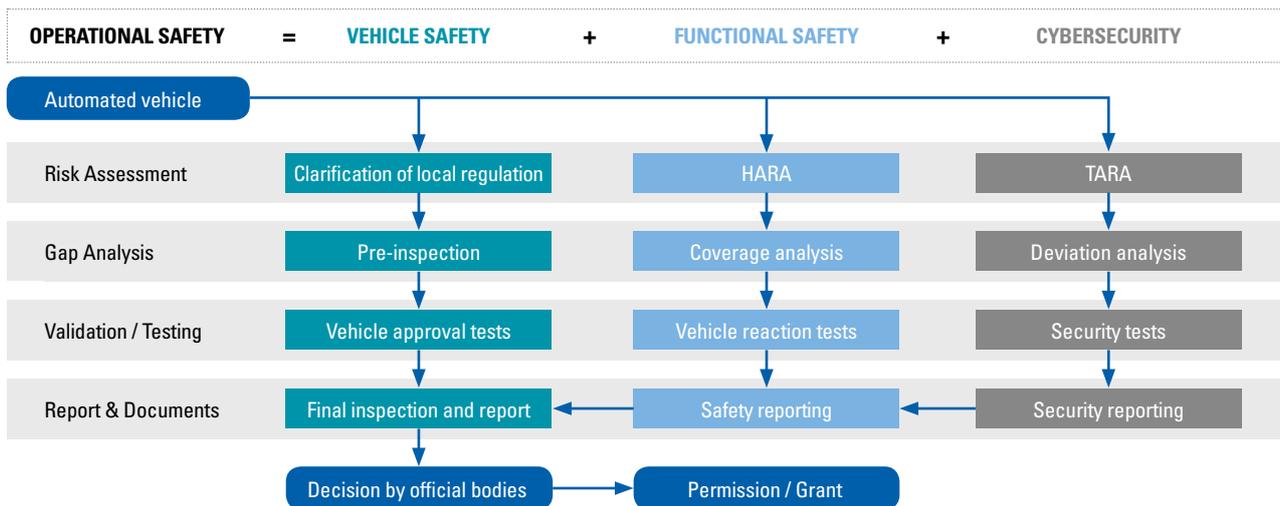
The cybersecurity assessment approach

Our TÜV SÜD experts have developed a cybersecurity assessment method that is specifically tailored for the AV approval process, and which is based on the latest international cybersecurity standards. Our assessment method was designed to provide an efficient transition to the upcoming automotive cybersecurity regulations. It is regularly aligned with current technology developments and industry best practices, and is constantly adapted to the latest cybersecurity threats.

Cybersecurity assessment for prototype approval is performed in three steps:
1. Ensure that critical assets were identified and cybersecurity risks were correctly mitigated.
2. Verify that critical vehicle systems implement effective and correct security measures.
3. Ensure that extensive tests were performed to validate the implemented security mechanisms.

TÜV SÜD

TÜV®

OPERATIONAL SAFETY	=	VEHICLE SAFETY	+	FUNCTIONAL SAFETY	+	CYBERSECURITY

Automated vehicle			
Risk Assessment	Clarification of local regulation	HARA	TARA
Gap Analysis	Pre-inspection	Coverage analysis	Deviation analysis
Validation / Testing	Vehicle approval tests	Vehicle reaction tests	Security tests
Report & Documents	Final inspection and report	Safety reporting	Security reporting

Decision by official bodies → **Permission / Grant**

How can we help you?

We support vehicle manufacturers, suppliers and mobility providers to obtain the required testing permit for both single prototype vehicles and prototype fleets. TÜV SÜD can assist you with designing a vehicle that has a sound security concept, or by validating your existing concept.

Our cybersecurity services for AV permit

TÜV SÜD provides customised services tailored according to your specific needs:

- **Technical advice** – TÜV SÜD specialists offer a high level of cybersecurity integration expertise to help you prepare documentation which meets the quality requirements of the cybersecurity assessment approval process.
- **Threat analysis, risk assessment and cybersecurity concept** – our global experts assist you in identifying the critical components in the automotive eco-system, and evaluating their respective cybersecurity threats and resulting risks. We also ensure that the cybersecurity requirements mitigate the identified threats.
- **Deviation analysis and test reviews** – we ensure that the implemented cybersecurity mechanisms are in line with the cybersecurity concept, and that the security tests verify the implemented controls.
- **AV permit** – we provide you with a detailed technical report evaluating cybersecurity and roadworthiness (vehicle safety and functional safety).

Your business benefits

- **Strengthen the rationale for AV permit** – by proving that safety and security risks were mitigated, your cybersecurity concept is validated and verified, and your systems are systematically tested.

- **Protect road users and your business** – by ensuring that cybersecurity threats were dealt with following state-of-the-art standards and best practice.
- **Develop secure, cutting edge AV technologies** – by ensuring that your automated driving systems were developed with security-by-design and defence-in-depth in mind.
- **Gain a competitive edge** – by working with international experts that have up-to-date cybersecurity threat, vulnerability and standards knowledge.

Why choose TÜV SÜD?

TÜV SÜD is an independent third-party testing, inspection and accreditation body with over a century of automotive safety, security and performance expertise. We follow the latest cybersecurity standards and regulations, ensuring that assessment reports are up-to-date and enable you to design and verify futureproof secure systems. Our AV permit approach has been successfully applied to a variety of automated mobility solutions, most of which have already been approved by authorities for use on public roads.

Add value. Inspire trust.

TÜV SÜD is a trusted partner of choice for safety, security and sustainability solutions. It specialises in testing, certification, auditing and advisory services. Through more than 24,000 employees across over 1,000 locations, the company adds value to customers and partners by enabling market access and managing risks. By anticipating technological developments and facilitating change, TÜV SÜD inspires trust in a physical and digital world to create a safer and more sustainable future.