

System development

Applus IDIADA offers **comprehensive services for ADAS and Autonomous Vehicles throughout the entire development cycle**, from the concept definition phase to final validation.

Our wide range of engineering services covers all phases of the development V-cycle and ISO2626, starting with the **definition of functionalities**, passing through the different phases of **development at both system and component level**, and ending with the **validation phase**, both virtual and on our excellent test tracks.



Definition of functionalities:

Our functionalities' definition services are designed to support our clients at any stage of the design process and include:

- High-level requirements definition
- Definition of use cases
- System-level technical specifications
- Definition of user interfaces
- Definition of functional requirements
- Definition of objective parameters for ensuring safety and comfort
- Support in the integration of ADAS functionalities with other existing vehicle functionalities

Our international presence in open road testing allows us to **adapt the functionalities to the specific characteristics of each market.**



Applus IDIADA's involvement in safety working groups, both at homologation level and in programmes such as Euro NCAP, allows us to be up to date regarding the latest developments in terms of future requirements to be taken into account during development.

At the same time, we cover the entire test specification, providing support in:

- The verification strategies and validation of functions
- The definition of the test scenarios to be considered for each functionality
- The definition of the testing strategy combining our virtual validation capabilities with our testing capabilities on our world-renowned test tracks
- The combining of our testing capabilities also on public roads around the world

Functional safety and SOTIF (ISO 26262 and ISO PAS 21448):

Regarding [Functional Safety \(ISO 26262\)](#), our services cover both support to OEMs in the concept phase (performing object definition, risk analysis, functional safety concept) and in later phases (technical safety concept). In addition, we can provide services concerning the management of functional safety.

In relation to **SOTIF (ISO PAS 21448)**, we provide services related to safety management of the intended functionality (SOTIF), function and system specification, SOTIF risk analysis, SOTIF verification and validation.

Software development:

Thanks to our **modular approach to software development** –always taking into account the specific needs of each customer– we can offer open-source software solutions for isolated ADAS and autonomous driving functionalities, or solutions where different functionalities with different levels of automation are considered. This allows the customer to have all the developed software, allowing to make future modifications or adding additional functionalities themselves, thus, ensuring flexibility during all phases of their vehicles' life cycle.

We provide tailor-made solutions, starting from the concept phase. These solutions can be taken to series production by our partners. Our development processes are based on automotive industry standards such as A-SPICE and ISO 26262. We can provide



complete development of functionalities or provide specific software modules, such as motion controllers and planning modules, among others.

Our solutions are developed with the following aspects in mind: model-based development, complementing the development with our virtual validation tools and our testing capabilities on track and public roads, in order to provide robustness, simplicity and safety in the solutions obtained.