

Human Factors

IDIADA has a dedicated group of Human Factors specialists and psychologists, offering a package of expertise on users of vehicles and transportation systems. Human Factors services provide support throughout the development process in order to **optimize safety and enhance the users' experience**.



Our Human Factors experts have access to world leading facilities, including **advanced driving simulation platforms, [test tracks](#), environmental laboratory, and real-world testing**. Pioneering data collection and analysis tools are available including camera-based eye tracking, motion capture, physiological data sensors, and human body modelling.

Research and investigation around users:

IDIADA has the capability to **design and implement large-scale studies involving representative users within defined conditions and scenarios**. Research activities can be adapted to a diverse range of client needs, dependent on experimental aims. These include:

- Measuring of occupant response to environmental and situational conditions
- Characterization of driver physiological and cognitive state
- Driver behaviour during emergency scenarios
- Targeted investigation of human-machine interactions
- Investigation of user trends in use of transportation systems and vehicles

User centred design and iterative product development:

IDIADA's Human Factors specialists have the background and know-how to lead development activities centred on vehicle and transportation users – inputting into **multiple areas of development including UI, ADAS and occupant comfort.**

- Specification of user requirements
- Use case identification and definition
- Iterative user testing and expert usability concept evaluations
- Advising on design and development in the end-user context

Evaluation, testing, and validation in the user context:

As a world leading vehicle validation and testing laboratory, the IDIADA Human Factors group is heading the development and implementation of testing procedures for vehicle assessment in the user context.

- Driver-in-the-loop evaluations (test track, open-road)
- Laboratory testing of safety systems (Driver monitoring systems, ADAS UI, [ADAS features](#))
- General usability assessment

Projects:

[ADASandME EU Project:](#) Development of multiple **non-obtrusive driver monitoring systems** (for detection of sleepiness, distraction, emotions, fatigue) and associated interfaces. This involved multiple demonstrators representing different vehicle types (Truck, EV, Car, Motorcycle, Bus). IDIADA was responsible for all evaluation activities, which were carried out with naïve users at the proving ground facilities, and for the impact assessment according to user safety and mobility.

[SUaAVE EU Project:](#) Development of an **adaptable vehicle concept able to optimise settings according to user emotions, acceptance, comfort, and the ethics of its use.** IDIADA is leading the development of intelligent models for both dynamic and ambient comfort, and for leading the development of use cases of future connected transportation systems.



[EVADE 2022](#): IDIADA led client consortium project defining **test protocols for emergency autonomous systems**. Research and evaluation activities have been conducted around multiple emergency conditions and systems concepts in a naturalistic driver experiment. This has involved over 250 naïve drivers participating in the [dynamic driving simulator](#) in one of the largest studies of this type ever conducted.