

A wireframe model of a car is shown in the background, rendered in a light gray color. The model is a detailed mesh of the car's body, including the hood, roof, windows, and wheels. The car is viewed from a front-three-quarter perspective.

AV Simulation platform based on standards

***ASAM / openSCENARIO workshop
17/09/2018***

Gilles GALLEE, Director of AV simulation solutions

ANSYS is the simulation leader

FOCUSED

This is all we do.

Leading product technologies in all physics areas. Largest development team focused on simulation

TRUSTED

97 FORTUNE
of the **100**
industrials

More than
45,000
customers worldwide

ISO 9001
CERTIFIED

PROVEN

Member of the prestigious **STANDARD & POOR'S 500**

\$13B+ market capitalization

GLOBAL

3,300
employees globally
75 offices in **40+** countries



LARGEST

2x the size of our nearest competitor (revenue)



INDEPENDENT

Long-term financial stability
CAD agnostic



COMMITTED

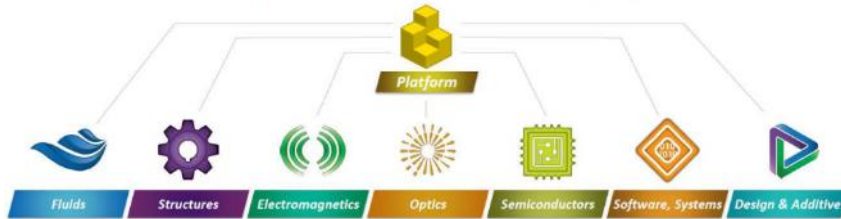
Overall customer satisfaction globally is at **87.8%** in 2017

DRIVEN

Helping customers address new market challenges: **digital exploration, AD - ADAS Simulation, digital twins - additive manufacturing**

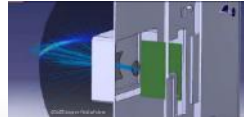
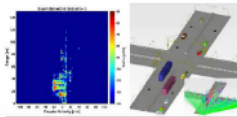
ANSYS is building a comprehensive solution based on standards

ANSYS offers the only true simulation platform with best-of-breed simulation across all major physics



Autonomous Vehicles

ANSYS's physically accurate driving scenario simulations conduct the most realistic AD systems validations



Why Standards?

Standardization groups benefits

- Framework where users and technology providers can meet – at early stage
- Framework sticking to industrial needs
- Enable “data and models exchange” as well as “product interoperability”

ANSYS involvement in standardization

- ISO 26262 edition 2
- SOTIF ISO Publicly Available Specification (ISO standard starts Q4 2018)
- IEC 61508
- ASAM
- KHRONOS Group

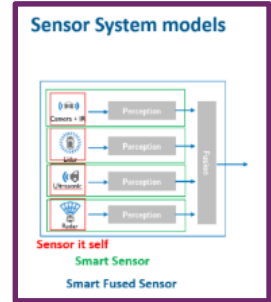
ANSYS involvement in R&D consortium

- SVA project
- REPLICA project → <http://projet-replica.com/>

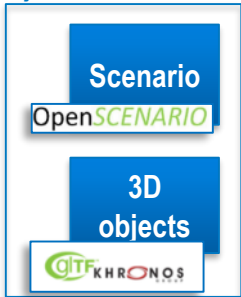
Customers needs

- **If objective is to share scenarios between simulators then scenario standard means similar interpretation of scenarios whatever the software in used**
 - Common lexicon (use case, scenario, manoeuvre, variations, parameters...)
 - Reference scenario interpretation / qualification
- **Use cases based on physical models of sensors will require**
 - 3D world (terrain, road) and 3D object library (signs, vehicles, pedestrians, animals...) based on standard file describing geometries, materials... → gITF KHRONOS Group ?
 - openSCENARIO to reference standard 3D world and 3D objects
 - Open Simulation Interface (OSI) to interface to 3D world and 3D objects
 - Environmental / Weather conditions to be defined

Sharing data & models between simulation environments



Dynamics Scenario



Road Environment

