

## **Reliability Goal definition for Safety Critical Systems - 15<sup>th</sup> October 2025**

**Presented by Narasimman Sunderajan – ZF Group**

### **Summary of Presentation**

The webinar focused on how to define and demonstrate reliability goals for safety-critical automotive systems. Narasimman outlined the importance of understanding the system's intended function, operating life, environment, and regulatory context when setting reliability requirements. Reliability was defined as the probability of performing the intended function over time, with common metrics such as B-life, FIT rates and MTBF discussed.

A case study of an electromechanical actuator system showed how reliability targets are influenced by safety-related behaviour, including vehicle controllability and stability requirements under ISO 26262 and other regulations. The system contains four actuators, and safety analysis determined that safe operation requires at least two functioning units for controllability and three for stability. Using a binomial model, Narasimman demonstrated how vehicle-level reliability targets (e.g., 99.99%) translate into component-level goals, resulting in a recommended actuator target of approximately 98–99% reliability.

He also highlighted the role of confidence levels in validating reliability estimates and the need to balance technical feasibility with practical constraints such as testing time and cost. The session concluded by emphasising structured analysis, appropriate confidence selection, and integrating safety and reliability engineering to achieve defensible targets.

To watch the recording of the webinar please [click here](#).