iRel40 - Intelligent Reliability 4.0

Intelligent Reliability 4.0 (iRel40) has the ultimate goal of improving reliability for electronic components and systems by reducing failure rates along the entire value chain. Trend for system integration, especially for heterogeneous integration, is miniaturization. Thus, reliability becomes an increasing challenge on device and system level and faces exceptional requirements for future complex applications. Applications require customer acceptance and satisfaction at acceptable cost. Reliability must be guaranteed when using systems in new and critical environments.
In iRel40, 79 partners from 14 countries collaborate in 6 technical work packages along the value chain. WP1 focuses on specifications and requirements. WP2 and WP3 focus on modelling, simulation, materials and interfaces based on test vehicles. WP4 applies the test vehicle knowledge to industrial pilots related to production. WP5 applies the knowledge to testing. WP6 focuses on application use cases applying the industrial pilots. We assess and validate the iRel40 results. Reliable electronic components and systems are developed faster and new processes are transferred to production with higher speed. Crucial insight gained by Physics of Failure and AI methods will push overall quality levels and reliability.
iRel40 results will strengthen production along the value chain and support sustainable success of Electronic Components and Systems investment in Europe. By collaboration between academy, industry and knowledge institutes on this challenging topic of reliability, the project secures more than 25.000 jobs in the 25 participating production and testing sites in Europe. The project supports new applications and reliable chips push applications in energy efficiency, e-mobility, autonomous driving and IoT. This unique project brings, for the first time ever, world-leading reliability experts and European manufacturing expertise together to generate a sustainable pan-European reliability community.

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