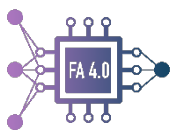


## Smart AI-based tools for ensuring reliable electronic devices for smart mobility and industrial production

*A project within the EUREKA EURIPIDES<sup>2</sup> & PENTA programmes*



Paris, 9 March 2021 - The Failure Analysis (FA) 4.0, a co-labelled EURIPIDES<sup>2</sup> and PENTA project, is addressing a fundamental challenge for the digital world: how to ensure increasingly complex electronic systems operate with complete reliability and safety in daily use.

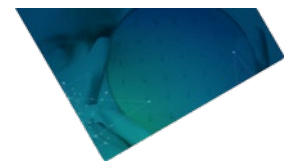
As digitalisation and automation rapidly advance, complex electronic systems and components will play an ever-bigger role in everyday life, enabling innovations from self-driving vehicles to smart homes. Even industrial production itself is becoming 'smarter' and more automated. These advances will help to improve the quality of life in our homes and cities; as well as making industry more efficient. However, to do this, the electronics at the heart of each product must operate safely and reliably at all times, especially in safety-critical applications such as automotive. In developing a smart approach to further improve failure analysis methods, tools and workflows by introducing Artificial Intelligence (AI) and sharing data throughout the design and manufacturing process, FA 4.0 will provide to tackle these crucial challenges.

Failure analysis is a process that allows the designers and manufacturers of semiconductor chips, printed circuit boards and other electronic components and systems to analyse, understand and avoid defects and failure risks during development and manufacture. However, failure analysis is currently a manual, time-consuming process, and test data is not shared between different design and manufacturing steps.

By applying breakthroughs in the field of AI research and data correlation, FA 4.0 intends to develop a holistic approach, that combines largely automated diagnostic tools in an efficient FA workflow process. The project will draw on the combined expertise of leading European electronics companies, SMEs and research institutes, to deliver key innovations in next generation diagnostic methods, tools and workflows as well as smart algorithms for identification and cataloguing of failures.

The challenge is both fundamental and highly demanding as the technologies used to create high performance electronic devices, components and systems (ECS) are constantly evolving. Devices are becoming ever smaller, with more densely packed functionality on each tiny device; plus, new materials, new types of assembly and packaging, and new ways of connecting devices into circuits are rapidly emerging.

At the same time, as demand for applications such as autonomous driving, smart industry, energy efficiency and medical applications grows, reliability and quality are becoming an essential requirement for high-tech products to enter the market. Thus, the outcomes of the FA 4.0 project will



be highly important to deliver the benefits of digitalisation for society and their resulting economic impact. They will allow European companies to create innovative electronic products and the failure analysis tools necessary to increase reliability and quality while reducing product development time and costs. The European electronics industry will be ensured to access the strategic future markets, particularly in safety critical applications. European failure analysis equipment manufacturers will have new opportunities in their global market segment of diagnostic tools as well.

#### About EURIPIDES

[EURIPIDES<sup>2</sup>](#) is a [EUREKA](#) Cluster promoting the generation of innovative, industry-driven, pre-competitive R&D projects in the area of Smart Electronic Systems. Guided by the [Electronic Components & Systems \(ECS\) Strategic Research and Innovation Agenda \(SRIA\)](#), EURIPIDES<sup>2</sup> is the innovation hub for smart sensors, smart power modules, electronic hardware platforms and more generally electronic product integration and embedded systems for automotive, aeronautics and space, security, medical electronics, smart everywhere (cities, home, wearable) and industrial electronics. EURIPIDES<sup>2</sup> facilitates access to national funding in Europe and beyond. As a EUREKA Cluster, the network is open to participants worldwide.

More on EURIPIDES<sup>2</sup>: <https://www.euripides-eureka.eu>

#### About PENTA

[PENTA](#) is a [EUREKA](#) cluster whose purpose is to catalyse research, development and innovation in areas of micro and nanoelectronics enabled systems and applications. Guided by the [Electronic Components & Systems \(ECS\) Strategic Research and Innovation Agenda \(SRIA\)](#) key application areas, foundational technology layers and cross-sectional technologies, the PENTA programme enables the development of electronic solutions to help drive the digital economy through the formation of collaborative ecosystems along the ECS value chain. This creates the opportunity for rapid competitive exploitation and a strong impact on European societal challenges. PENTA supports SMEs, large corporations, research organisations and universities to work together in project consortia by facilitating access to funding, fostering collaborative work and creating consortia in areas of mutual industrial and National interest.

More on PENTA: <http://www.penta-eureka.eu>

#### About FA4.0

FA4.0 is an RD&I project consortium involving 21 partners from 4 countries, Germany, France, Czech Republic and Sweden. The project partners are: Infineon Technologies AG (project coordinator), Direct conversion AB, Ecole des Mines de Saint Etienne, Ericsson AB, Excillum AB, Fraunhofer IMWS, Gimic, Jean Monnet University (Saint-Etienne), Kern Microtechnik GmbH, Materix AB, Matworks GmbH, Orsay Physics, PVA TePla Analytical Systems GmbH, RISE IVF AB, Robert Bosch GmbH, STMicroelectronics (Rousset) SAS, STMicroelectronics (Tours) SAS, STMicroelectronics (Grenoble2) SAS, TESCANA ORSAY HOLDING and University of Stuttgart.

More on FA4.0: <https://penta-eureka.eu/project-overview/penta-call-4/fa4-0/>