



## Project Profile

# SOSIS

### Streamlining certification and variability management for critical systems

To optimise the continuous development of industrial safety/mission-critical systems, the ITEA project SOSIS (Software product line Optimisation for Safety-/mission-critical Industrial Systems) will develop methods and solutions that improve variability management and reduce certification efforts.

#### Addressing the challenge

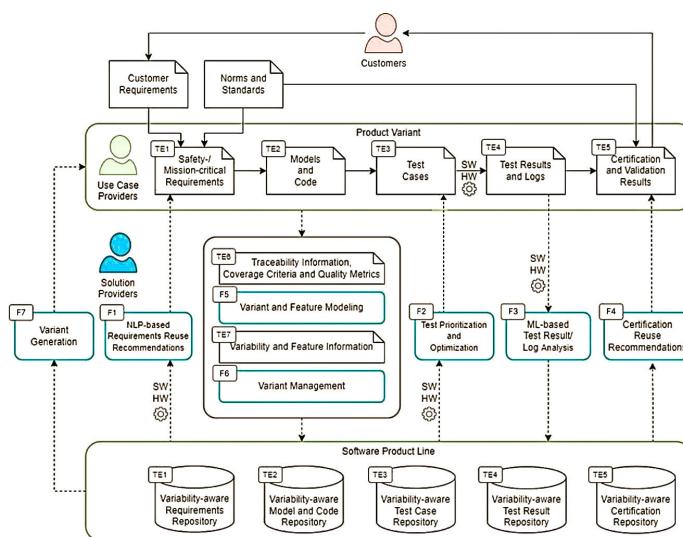
Customers typically demand short delivery times for safety/mission-critical systems (such as for telecommunications, banking and medtech), despite the increasing complexity of elements like safety certification. Software product line (SPL) management has proven benefits in increasing efficiency and reuse at various levels – including certification artifacts, requirements, code and testing – but brings further complexity through variants. Additionally, issues are typically uncovered at later stages, increasing project development costs. The vast number of activities, methods and techniques required for the creation of high-integrity, high-quality SPL artifacts for safety/mission-critical systems calls for new instruments and mechanisms for managing variability.

#### Proposed solutions

SOSIS aims to achieve this by developing techniques that enable the reuse of certification artifacts, focusing on requirements, implementation, testing and deployment. Four technical objectives are at the heart of this. First, methods will be developed to address real industrial product line challenges by adopting AI/ML-based approaches for requirements reuse analysis while taking into account the shift towards standardised, product line-centric development pipelines. Second, the project will develop novel approaches to target (semi-)automated variant generation and verification from specification models via AI/ML-based models for variant modelling. Third,

methods will be provided to establish (semi-)automated feedback loops from operation data via log analysis and defect classification in order to provide actionable knowledge. Finally, SOSIS will improve and shorten the overall process of safety/mission-critical system certification/validation by standardising product line phases and activities for new variant generation.

home appliances, and the consortium's representation of the complete market value chain, strong competitive advantages are foreseen for end-users: faults should be identified 20-30% earlier; the reuse of requirements, implementation and test suites should increase by up to 70% by identifying commonalities across SPLs; the reuse of certification artifacts should increase by 30-60%, reducing time to market; and the costs and resources of validation and testing should fall by 20-30%. Commercial exploitation of the tools will also enable partners to command a more competitive share of fast-growing markets like product lifecycle



◀ SOSIS  
solution  
concept

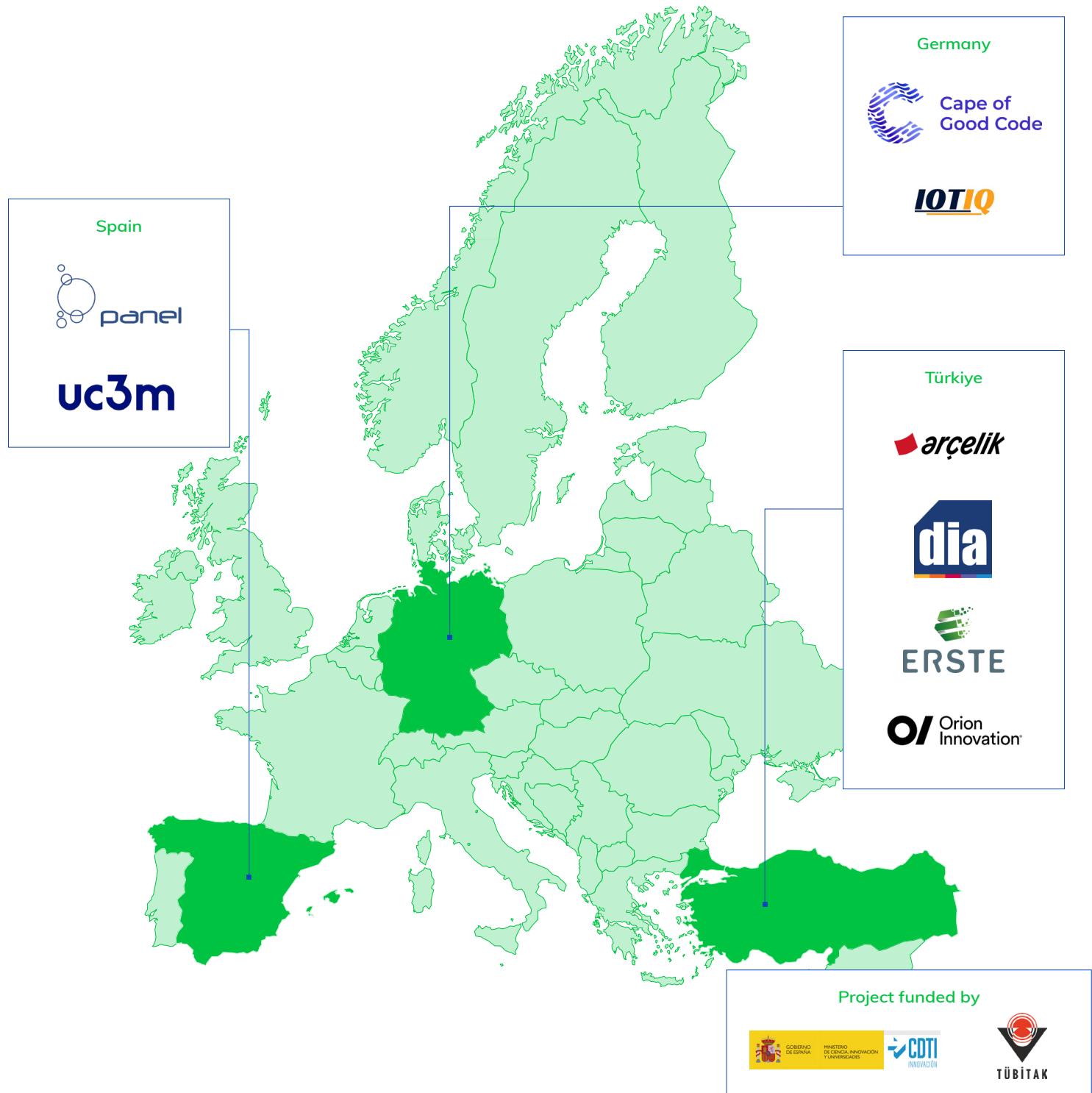
#### Projected results and impact

Only two commercial tools currently exist to support consistent, holistic variant management in complex, distributed settings. By providing modern tool solutions beyond the state of the art, SOSIS can therefore fill a considerable gap within the European industrial market. Thanks to the project's applicability to several industries, including telecommunications and

management, expected to increase from USD 59.02 billion in 2021 to USD 122.28 billion by 2030 at an 8.2% growth rate. By providing a platform for experimentation and knowledge transfer within European industry, SOSIS ultimately aims to establish a community for defining new approaches and services based on its results, guaranteeing long-lasting impact beyond the project's completion.

# Project partners

SOSIS  
22029



**Project start**  
December 2023

**Project leader**  
Bilge Özdemir, ERSTE Software

**Project website**  
<https://itea4.org/project/sosis.html>

**Project end**  
April 2027

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