



INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

Gene-Auto, ITEA Project 05018

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Place / Date (type in slide master)

Title or occasion of the presentation
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Background Context

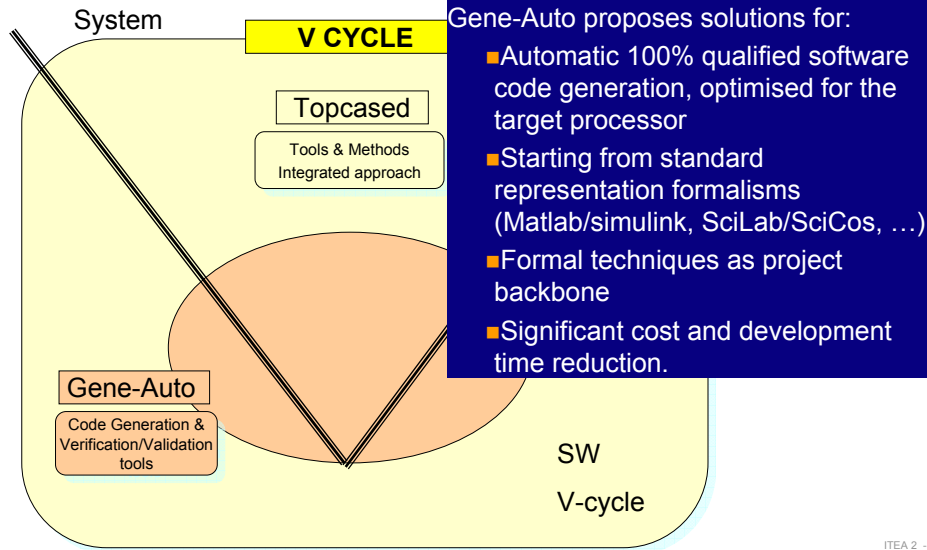
Project aspect

- Functionality and complexity increase
- Increased Safety-criticality
- Product quality and certification
- Reduction of development cycle and prototypes loops

Development aspect

- Software performance of real time embedded systems
- Importance of mathematical function model
- Review of DO178C, ECSS, Automotive IEC61508
- Open source emergence (TOPCASED reference)

Gene-Auto Scope



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Gene-Auto Consortium

Partners

- Industrial "users"
- Services "suppliers"
- SME's
- Research Institutes
- Universities

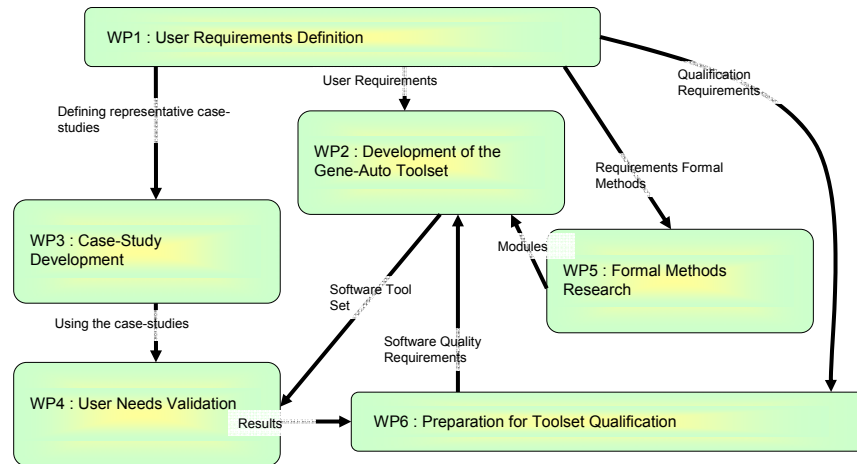
Duration : 3 years from January 2006

Countries : Belgium, Estonia, France, Israel



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Project Structure



Project Objectives

- Automatic C code generation
- Microcontrollers resource optimisation
- For mathematical functional models (Matlab, Scilab)
- Independence of models via middle language
- Tests using via formal verification and validation techniques
- Both model and code levels correctness
- Adapts to reuse and configuration of functions
- Full qualification consideration
- Open source prototype
- Validates methods with industrial software diversity

Expected results

- **Common user requirements specification for a generator of real-time embedded code.** A complete set of validation activities aiming at qualification of the toolset will be defined.
- Development of an approach based on **formal techniques for verification and validation.** These techniques will be applied to the designed models, the produced software code and the code generator.
- **Prototype of the embedded software code generator**
 - based on the common user requirements specifications,
 - able to produce optimised embedded qualified software code, and
 - supporting systems and software engineering approached as used by the industrial partners.
- At the end of the project, **additional efforts** will be necessary:
 - realisation of an industrial product starting from the prototype, and
 - concluding the qualification activities for the concerned industrial domains.



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Thank you for your attention

