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iFEST – ARTEMIS-IA Summer Camp 2012

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The challenge and the vision

Challenge:

- Increasing complexity of **embedded systems** driven by:
 - market demand for more intelligence
 - evolution towards more complex electronics

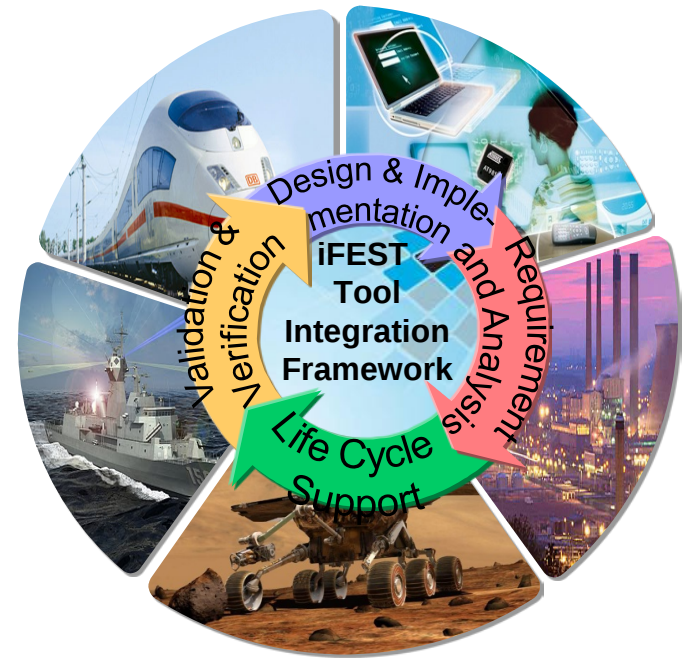


Illustrative example

- Engineering tools are not well integrated**
- Escalating dev. cost and quality problems**

Vision:

Well functioning integrated tool chains



based on iFEST integration framework

iFEST

Purpose of project

- To provide an integration framework specification.
- The specification is open, thereby enabling flexible integration of different tools encompassing engineering as well as cross-domain tools (e.g. for configuration and change management).
- The solution is supporting efficient establishment and maintenance of tool chains for engineering of complex industrial embedded systems, as well as HW/SW codesign and product life-cycle management.

iFEST Goals



Industry driven project where time, cost and quality are the prime success factors:

iFEST goals:

- 20% reduced time-to-market, engineering costs and cost of poor quality for **embedded systems**

In addition we aim at:

- Opening the embedded tool market for European Tool Vendors through open standards

iFEST

Success factors

- Standardization
- Commercialization

iFEST Standardisation Motivation

- Encourage the use of standard integration technologies for tool integration
- Encourage the development of production quality integration frameworks
- Achieve strong industrial take-up of integrated tools and frameworks
- Enable products and services to be designed more efficiently through use of integrated tools and frameworks

iFEST Standardisation Challenges

- Standardisation is a long term process
 - Longer than R&D project lifetime
 - Correct stakeholders need to be involved in process
 - Takes time to identify and influence relevant standards organisation
- Duration of iFEST project is only 36 months
 - iFEST Integration specifications only available towards end of project
 - Evaluation of iFEST integration technologies occurs at end of project
 - No time for refinement of iFEST integration specifications
 - Only sufficient time to develop integration technology baseline
 - Limited industrial evaluations
- Cooperation with other research projects on standardisation
 - Need to identify similar standardisation activities and combine efforts
 - Agreement on common technical concept is challenging

iFEST Standardisation Strategy

- iFEST has decided to adopt OSLC for tool integration
 - Existing OSLC specifications not sufficient
 - Need to be extended to support iFEST tool integration
- OSLC type specifications are being developed for iFEST
- Utilize OSLC community as vehicle for promotion/adoption of iFEST results
- Several research projects have adopted/are considering OSLC
 - CESAR, SPRINT, MBAT, OPENCROSS

iFEST Standardisation Strategy

- By end of iFEST project
 - Initial demonstration/evaluation of iFEST tool integration using OSLC
 - Would need further refinement/evaluation before standardisation
- Dual strategy for standardisation after end of project
 - Follow on project to further validate and refine OSLC specifications
 - Focus on industrial use cases
 - Standardization working group (possibly supported by EIT-ICTLABS?)
 - Technical coordination between research projects using OLSC
 - Contribute to OSLC community to influence OSLC direction

Exploitation Plan Objectives

- The Exploitation Plan aims at:
 - Developing Exploitation strategies - *The Go-To-Market*
 - Individual
 - Groups and Partnership
 - Consortium
 - Identifying Exploitable items - *Products and Services*
 - SW, IPR, standards, ...
 - Designing Business Model(s) – *Value Generation*
 - Licensing, subscription, open source ...



These objectives are natural and fully aligned with the commercial and marketing goals of the industrial and tool vendors partners

Exploitation hurdles and challenges

- Internal challenges
 - Slow buy-in from industrial partners due to the required cultural and process changes
 - Lack of data and industrial cases to prove the business case
 - Lack of involvement of marketers and entrepreneurs: stakeholders involved in such projects are researchers and engineers
- External Challenges
 - Diversity and disparity of the Embedded Engineering tool market
 - Lack of standards
 - Immaturity of the tools and integration technologies
 - Lack or slow endorsement by large system integrators
- Market and Business Model
 - Unclear Market positioning due to the nature of the product (framework)
 - Unclear or Complex Business Model for the framework

Organisations and Strategies

Type of Organisation	Usage and Exploitation
Education and research	Training Programmes and Course Research projects Spin-Off
Tool users	Internal Deployment and Process Improvement Benefits measured in terms of ROI and savings
Tool providers	Commercialisation Standardisation Training Consultancy Partnership with large System integrator Exit strategy (buy-out)

A possible core for an iFEST CoIE ?

A Dedicated Entity for exploiting iFEST results

- Develop a Joint Venture organisation between the iFEST industrial parties
 - Act as the face of the consortium for exploitation and standardisation
- Define the Joint venture Modus Operandi in terms of:
 - Structure
 - Equity shares
 - IPR management
- Exploit the immediate results and find other usages of the:
 - Framework, Platforms, transversal tools and adaptors
- A blended Business Model
 - Commercial and licencing
 - Open Source for quick promotion and standardisation

iFEST Tool Platforms?

How to support exploitation of IF in Europe

- Tool Platforms are an instrument to support sustainability and productivity by sharing research results among projects targeting related objectives
- Can EIT-ICT and the Tool Platforms working group help iFEST and others to get their tool integration into sustainable use?
- iFEST has concrete, but still immature, results and we would like to co-operate with others that also have concrete results in this area or would like to use the iFEST results. The main iFEST results, which is work in progress, can be categorized as follows:
 - the Integration Framework – a specification
 - the Integration Platforms – implementations supporting creation of tool chains
 - a set of tool adaptors
- We are working on the idea of creating an iFEST organization, and EIT-ICT and the Tool Platforms working group can help here, as well as in enlarging the community of potential users