

ProSE- Period I

General Presentation of ProSE

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THALES

Promoting Standardization for Embedded Systems

Setting the scene

- The fragmentation of embedded systems markets, technologies, and research communities has the consequence that the standardisation activities for embedded systems have also been very fragmented over
 - ◆ different committees,
 - ◆ different contributing communities,
 - ◆ and even different standardisation bodies.

- Standards and standardisation activities have an essential role
 - ◆ in supporting innovation;
 - ◆ in both reassurance to the public, and enhancement of competition
 - ◆ for rapid establishment of markets, accelerating take-up of technology;

- ProSE focuses on
 - ◆ Providing recommendations on Embedded Systems Standards to:
 - foster cross domains synergies
 - accelerate development and evolution of standards responding to the needs of the fragmented and fast evolving markets.

 - ◆ Providing the “Embedded Systems” community, particularly ARTEMIS ETP and ARTEMISIA with adequate support to implement of their objectives in the “Standardisation” arena by:
 - setting-up a methodology for prioritisation
 - building links with the standardisation bodies in order to foster the emergence of standards in line with the high level objectives of the ARTEMIS ETP
 - Delivering a Strategic Agenda

Project main objectives

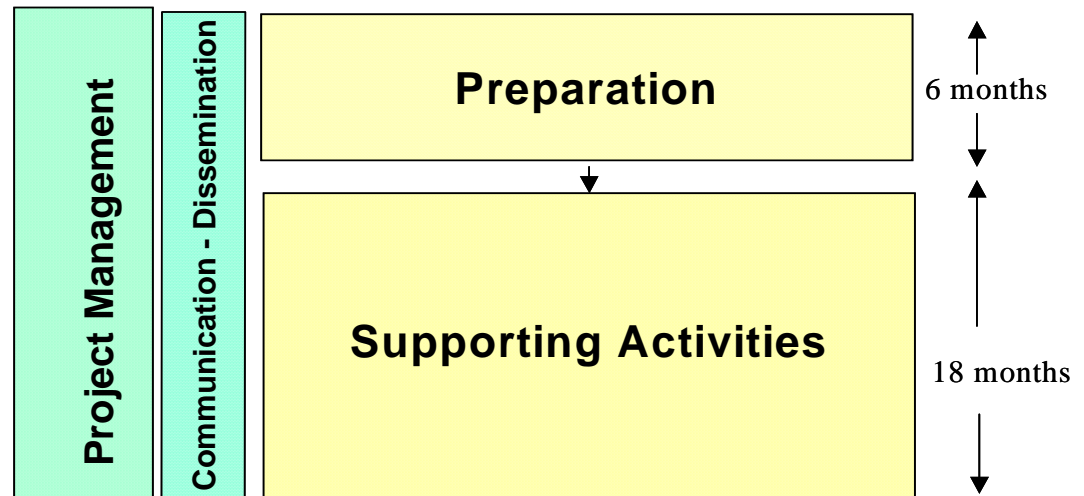
The ProSE project aims to provide the “Embedded Systems” community, with adequate support in the “Standardisation” arena by:

- Setting-up a **methodology for prioritisation**, enabling emergence of high value standards.
- Building links with Standardisation bodies to foster the emergence of ES standards
- Assisting ARTEMISIA in elaborating, maintaining, and monitoring a **Strategic Agenda**
- **Disseminating knowledge** about relevant deployed and emerging standards, moving to identification and prioritisation of new areas and coming up with a practised methodology for supporting their development and acceptance.
- Making a survey of the state of the art and performing a gap analysis through the adoption of a methodology for **identification of appropriate standardisation candidates**.
- Linking (**through an open forum**) to European, national and international standardisation bodies and pre-standardisation organisations to collaboratively (e.g. in workshops) classify different **standardisation** needs.
- **Contributing to the ICT action plan** (European Commission in March 2006)

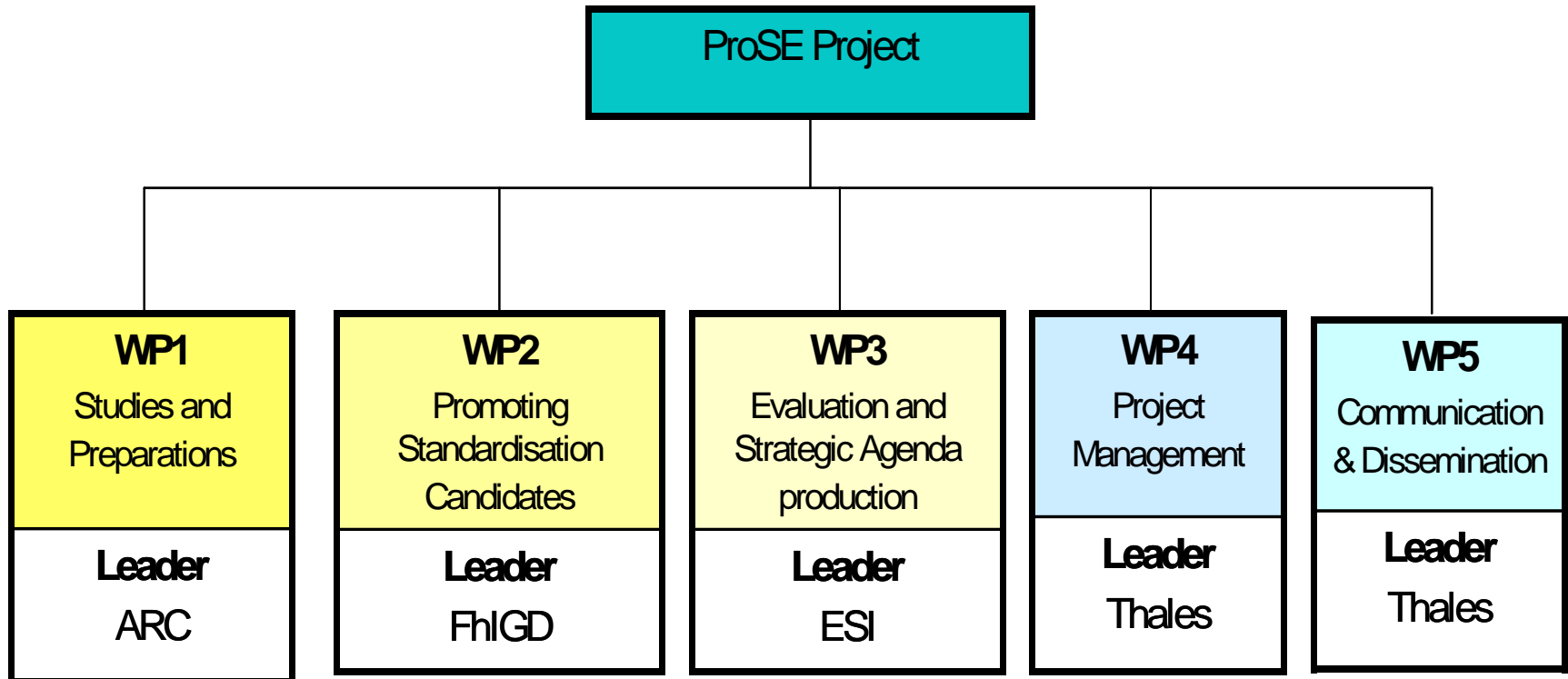
The Approach



The Phasing



The work structure



The Partners

Name	Organisation	Role in the Project	In charge of	email
Laila Gide	Thales	Coordinator	Project Management Communication & Dissemination	Laila.gide@thalesgroup.com
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ProSE WP1: Studies and Preparation

The goal of WP1 is to:

- explore the current situation regarding needs, achievements and expected future areas of interest in the field of Smart Embedded Systems,
- explore the situation regarding standardization organizations, bodies, groups and other key players,
- define criteria for selection and an activity model for promoting standardization by identifying the set of possible supporting activities and their relationships,

- **FIRST:**
 - ◆ To **draft the landscape** for embedded smart systems middleware and application areas and **identify** existing and potential (evolving) R&D results that could be used as a **first list of applicants** for adaptation of existing standards, influencing evolving standards as well as requirements for **new standardization areas**.
- **SECOND:**
 - ◆ From among the existing and evolving R&D results, the partners will identify those that could claim to be a **good standardisation candidate** in either one of the addressed types of standards, as if they are applying to be accepted as a standardisation candidate. This will be used in WP2 as a list of applicants to be filtered according to the evaluation criteria provided in Deliverable D 1.2.
- **THIRD:**
 - ◆ Stakeholder and public involvement (on invitation): Discussion via WIKI
- **FOURTH:**
 - ◆ Approaching standardization organizations, to initiate about 3 standardization activities

Stakeholders include:

- Industry (Manufacturers, Suppliers and “Users”)
- standardization bodies,
- EU (and national) officials
- Other ETPs and related platforms/organisations
- public authorities,
- professional, trade or industrial associations
- regulators,
- certification/licensing agencies and assessors,
- various interest or user groups (e.g. consumer associations)

The appropriate mix of stakeholders has to be identified and invited to contribute their needs and views.

Standardization organizations:

- International, based on co-operation of national expert groups or mirror committees: ISO, IEC
- European, based on similar principles: CEN, CENELEC
- Large national ones: USA (IEEE, ISA), China arising

Industrial standardization groups/consortia/companies:

- International: OMG (UML, MDA, CORBA, DDS, SysML...), Open Group (e.g. RT- and ES Forum, Posix, RT-Linux, safety-critical RT-JAVA), OSGi, RTCA, ARINC, ... (US-dominated)
- (Mainly) European: ETSI, AutoSAR, FlexRay, ..., pre-standardization WG (e.g. EWICS TC7)

De facto standards (e.g. MicroSoft Windows, IBM, SAP, ...)

- “Matrix” structure:
 - ◆ Dimension 1: International/industrial/de facto
 - ◆ Dimension 2: generic/application domain specific

- Generic (cross-domain) standards
 - ◆ Non-functional properties (dependability, performance, usability, Q...)
 - ◆ Processes (life cycle dep./indep., supply chain dep., certification)
 - ◆ Generic methods, tools, middleware, interfaces
- (Application) Domain specific standards (areas)
 - ◆ Automotive
 - ◆ Aerospace, Air Traffic management
 - ◆ Railways
 - ◆ Medical equipment (devices), healthcare
 - ◆ Process control, Manufacturing, Enterprise Management (diff. levels)
 - ◆ Telecommunications
 - ◆ Ambient Intelligence, AAL (private Space, Home)
 - ◆ Infrastructure, Logistics

Scheme to describe and characterize candidates

ID	Short description
Area	Research/application area
Status	Adaptation of existing standard/emerging standard/new standardization area
Promoted by	Consortium, industrial group, research group, national/international org. etc.
Rationale	Arguments pro/con, impact
Activity	Activity already set (e.g. NWI proposed, WG initiated, project result available, etc.), planned or required.
Acceptance	Importance for the public or specific groups, issue requested, interest of consortium, industrial group, social group, research initiative etc.
Scope	Objective and scope of the intended standard, relations to existing or other evolving initiatives or standards, intended use and application etc.
Impact	e.g. increased interoperability, market impact, impact for customers and users (groups, consumers, manufacturers) etc.
Regulation Bodies	(potential or existing) regulatory or licensing authorities, relevant standardization bodies

ID	IEC 61508-MT
Area	Functional Safety Generic
Status	Existing Standard, Maintenance Phase
Promoted by	IEC
Rationale	<p>To integrate DECOS input (FP6 IP "Dependable Embedded components and systems) (and of related projects like MOGENTES for Testing) and of Artemis projects like Genesys and CESAR. The standard was for several years under revision, some limitations were:</p> <ul style="list-style-type: none"> ◆ It does not address human factors ◆ It does not cover safety cases ◆ It does not include security aspects which may impact safety ◆ Certain architectures are missing (e.g. time-triggered architecture)
Activity	Study further development of IEC 61508, look for potential input from EC-projects (and other research). For upcoming new concepts (e.g. From CESAR, MOGENTES or other projects) prepare for next maintenance phase.
Acceptance	Standard well accepted and used, but openness for further information on methods and tools etc.
Scope	Architectures, methods and tools to be considered in current and next phases
Impact	Simplify application of standard in new areas or with new methods, tools or architectures
Regulation / Bodies	NA/IEC

Result of second step in WP1 (pre-selection):

- Pre-selection: led to 18 candidates to be presented (promoting flyer, available month 11, DATE'09 conference and Artemisia General Assembly)
 - ◆ Pre-Selection classification:
 - M: Mature standard (existing, accepted, update proposed or currently under maintenance)
 - M-: Mature standard, but not recommended to be updated because objectives already fully met or related candidates being more promising
 - E: Evolving (emerging) standard, to be influenced short term
 - E-: Evolving standard, but not recommended because of time schedule or other reasons
 - N: New standardization area to be looked at for future standardization
 - ◆ Pre-selection interests/voting as basis for discussion:
 - x = Interest of partner; X = Major interest of partner ;
 - s = submitter;
 - D = to be dismissed from list
 - D* = to be dismissed because already fixed, no promotion needed, or out of scope

ProSE Charter

The ProSE Charter provides...

1- A method for representation and analysis of:

- ◆ the scope of existing , evolving or potential standards,
- ◆ the technological and market factors that motivate them and that influence their realisation, and
- ◆ their potential technological and economic impact

2- A method for analysis of standards to inform prioritisation for action, taking into account:

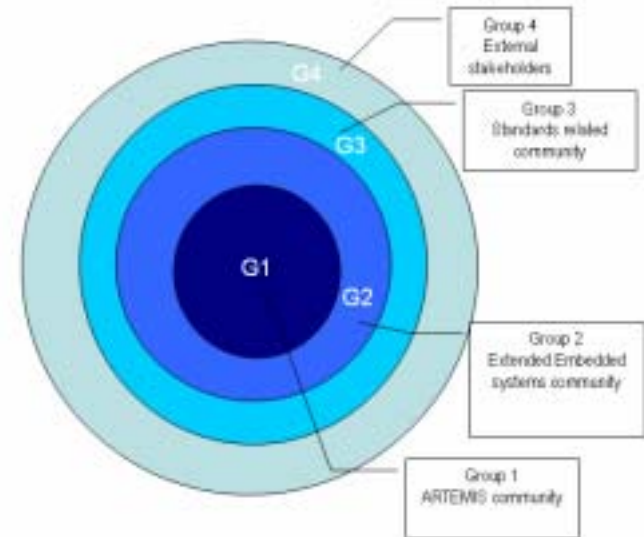
- ◆ market maturity, technological maturity, public awareness and risk perception
- ◆ European strengths and weaknesses vis-à-vis extra-European strengths and weaknesses, and in particular, impact on business models, business priorities
- ◆ ..and other criteria elements, up to 27 indicators.

ProSE Charter

The ProSE Charter provides...

3- A method for:

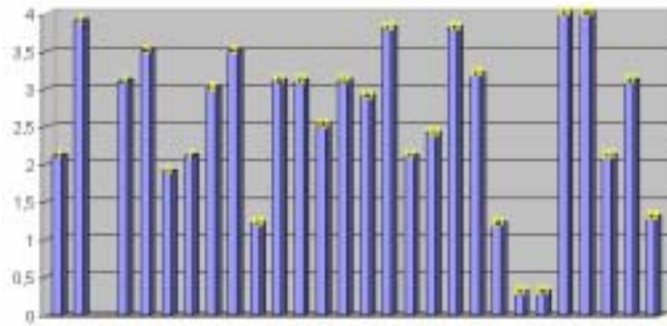
- ◆ prioritisation of areas for action, based upon these analyses
- ◆ identification of the most appropriate form of action, taking into account the analyses indicated above.
- ◆ Role based selection, filtering and brokerage.



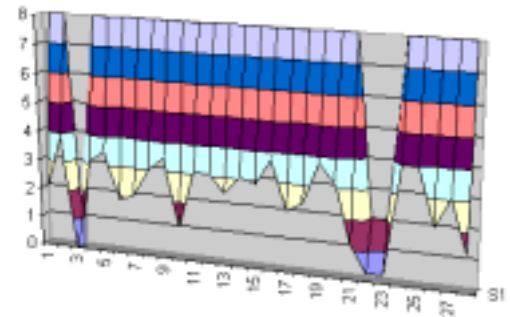
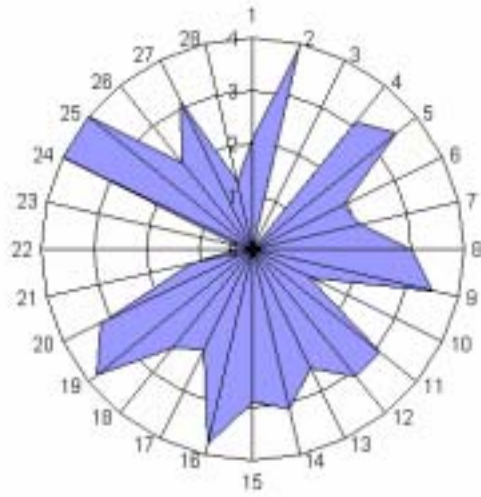
ProSE Charter

- As a result, the selection process derives data that drives the selection of candidates.

CVL RANKING



CVL RADAR VIEW



WP3 Goal

- **Elaborate Strategic Agenda on Standards** for Embedded Systems
 - ◆ An **analysis of the collected standards**, refined and structured to establish a baseline.
 - ◆ A **series of actions** to create and stimulate cross domain synergies as key challenge for the industry and the application of Standards
 - This involves creating, extending and promoting standards across domains.
- **Motivation: Standards key element as a business and technological enabler** for the wide adoption of ARTEMIS Method, including tools and design aids.
- **Method:** The most promising technique is to **work across different domains**: aligning standards so that they share common concepts and semantics (even if different terms area used)
- **Aim:** ProSE Strategic Agenda **to serve industry at large** beyond the community that participated in its development.

WP3 Structure

Task 3.1 Evaluation of the ongoing work in WP2

Participants: FhIGD (leader), Thales, ESI, ARC, AVL, Acciona

- Analyse the network of information captured, refined, structured and cleaned during the previous phases of the project. This task will in fact act as bridge between WP2 and WP3.

Task 3.2 Creation of the Strategic Agenda – Enactment

Participants: ESI (leader), Thales, FhIGD, ARC, AVL, CEA, Acciona

- Elaborate the structure of the SA and produce a first version of the Strategic Agenda, including a strategy to create the cross domains synergies

Task 3.3 Refinement of the Strategic Agenda

Participants: ESI (leader), Thales, FhIGD, ARC, AVL, CEA, Acciona

- Get feed-back from the Community, by organising a “critical peer review” with the ARTEMIS/ARTEMISIA Working Group on the Standards, and with selected ESOs and update the SA for the 2nd release

- Dissemination
 - ◆ ProSE Website is established <http://www.prose-project.eu>
 - ◆ ProSE flyer (fact sheet)
 - ◆ ProSE presentation at Korea-EU ICT Cooperation Forum, Seoul, June 16-17, 2008
 - ◆ ProSE article in ERCIM News 75 (Oct. 2008)
 - ◆ ME'08, Microelectronics Conference Vienna, Oct. 15-16, 2008
 - ◆ Networking session at ICT 2008 in Lyon, 26.11.2008
 - ◆ CEN/CENELEC ICT Forum, Brussels, 24.3.2009
 - ◆ WASP Workshop Darmstadt, 25.3.2009
 - ◆ Last dissemination activity at EWICS TC7 meeting, Vienna, 1.4.2009
 - ◆ Further activities are listed on ProSE Website

- Deliverables:
 - ◆ Survey and Classification of Existing Standardization Bodies
 - ◆ Survey and Classification of Relevant R&D Results in Embedded Systems
 - ◆ ProSE Charter: Work Model and Proceduresw

- Wiki for public discussion will start: *www.prose-project.org*