TOPCASED
Toolkit in Open-Source for Critical Application & Systems Development

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http://www.topcased.org

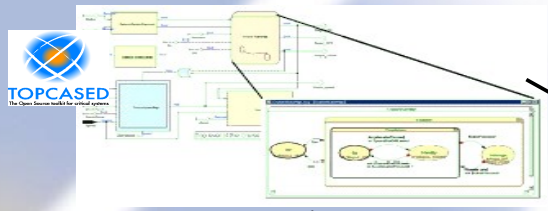
Overview of TOPCASED Project : Why, What, Who and How ?

Why ?

- To reduce development costs for embedded systems (Aeronautical, space and automative domains) by promote optimised process and tools : maturity, competitivity and time to market end product. Supports Model Based Engineering
- To insure durability of the toolkit through an Open source approach : limited market, very, very long life, editors durability, editors strategy, deployment facilities.
- To integrate current academic research results in industrial development process.
- To enforce Academics / Industries relationship
- To provide student engineers with knowledge of industrial process and related tools
- To enforce SMEs / Industries relationship

Overview of TOPCASED Project : Why, What, Who and How ?

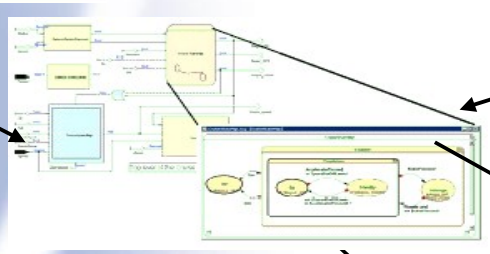
Analyses or DesignModel

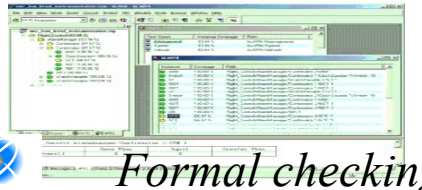


Simulation

Verification loop

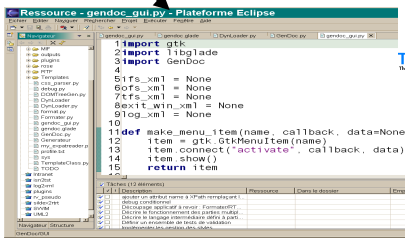
Transformation





Formal checking

Transformation



Source or Test Code

Documentation

Configuration, Change and Requirement management tools communication

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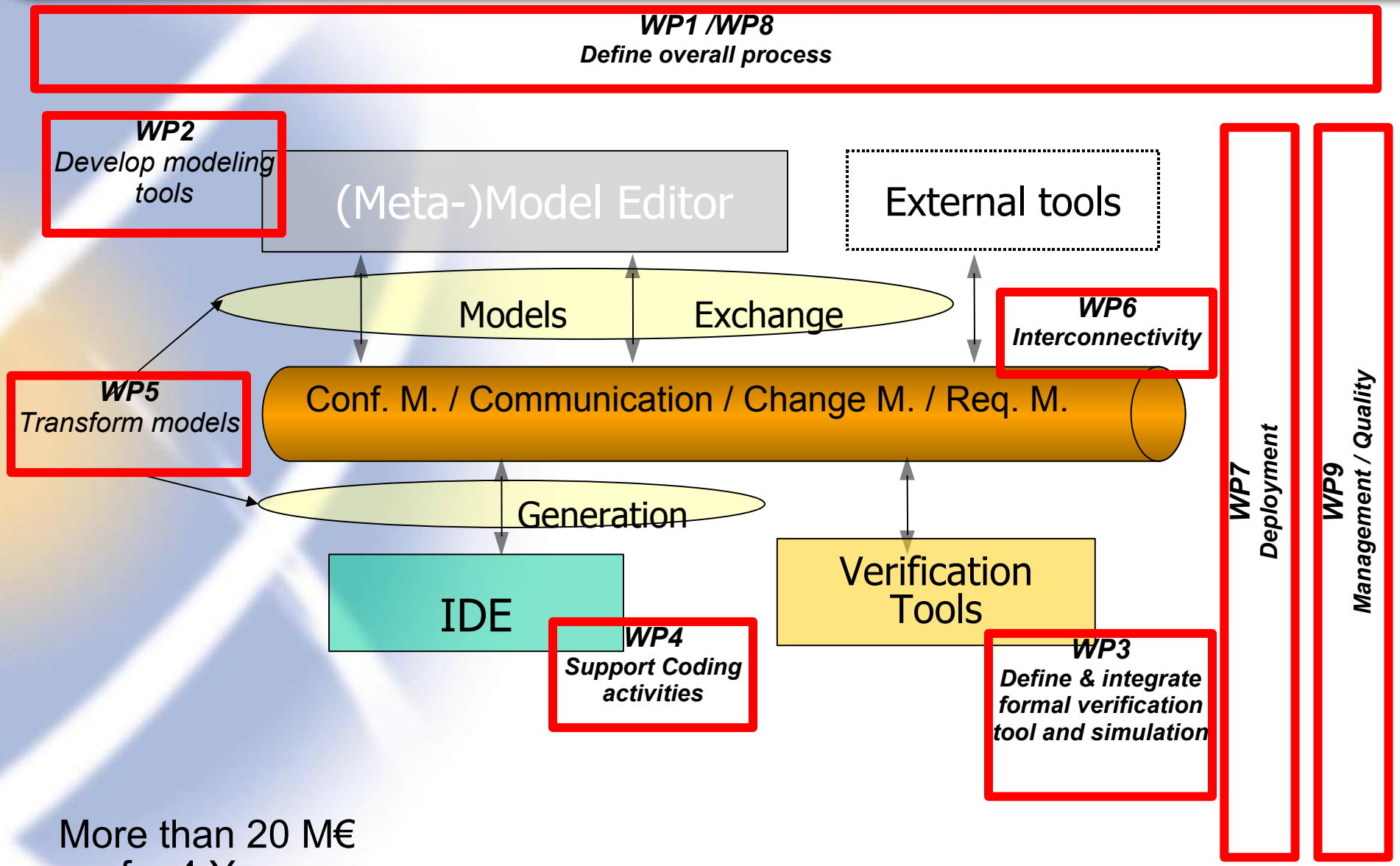


More than 20 M€ for 4 Years

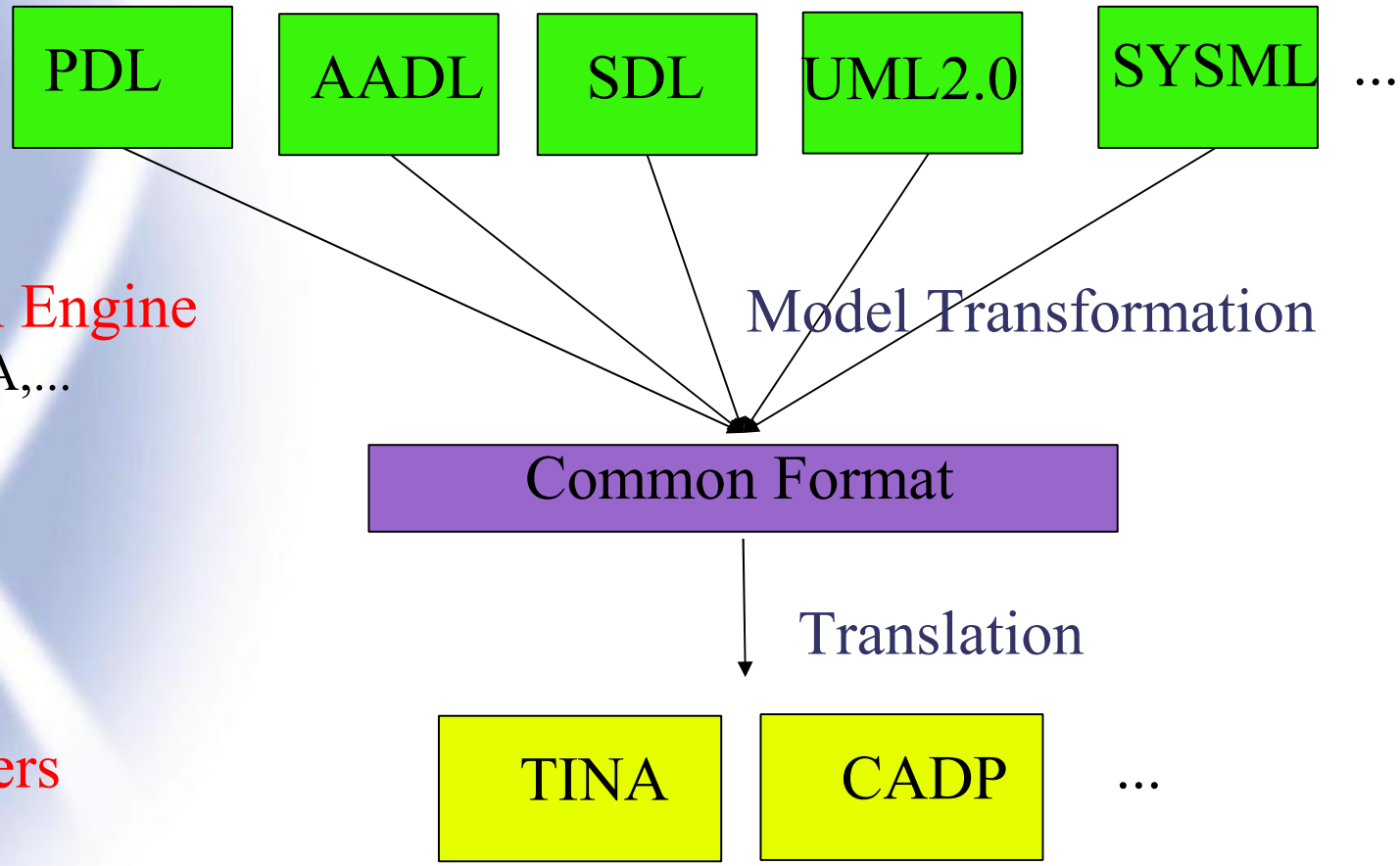
Overview of TOPCASED Project : Why, What, Who and How ?

Meta-Modeller

Modelling Languages

Meta-Modelling

Editors



Transformation Engine

ATL,KERMETA,...

Model Transformation

Compilers

Model-Checkers

Simulator

Simulation & Formal Verification

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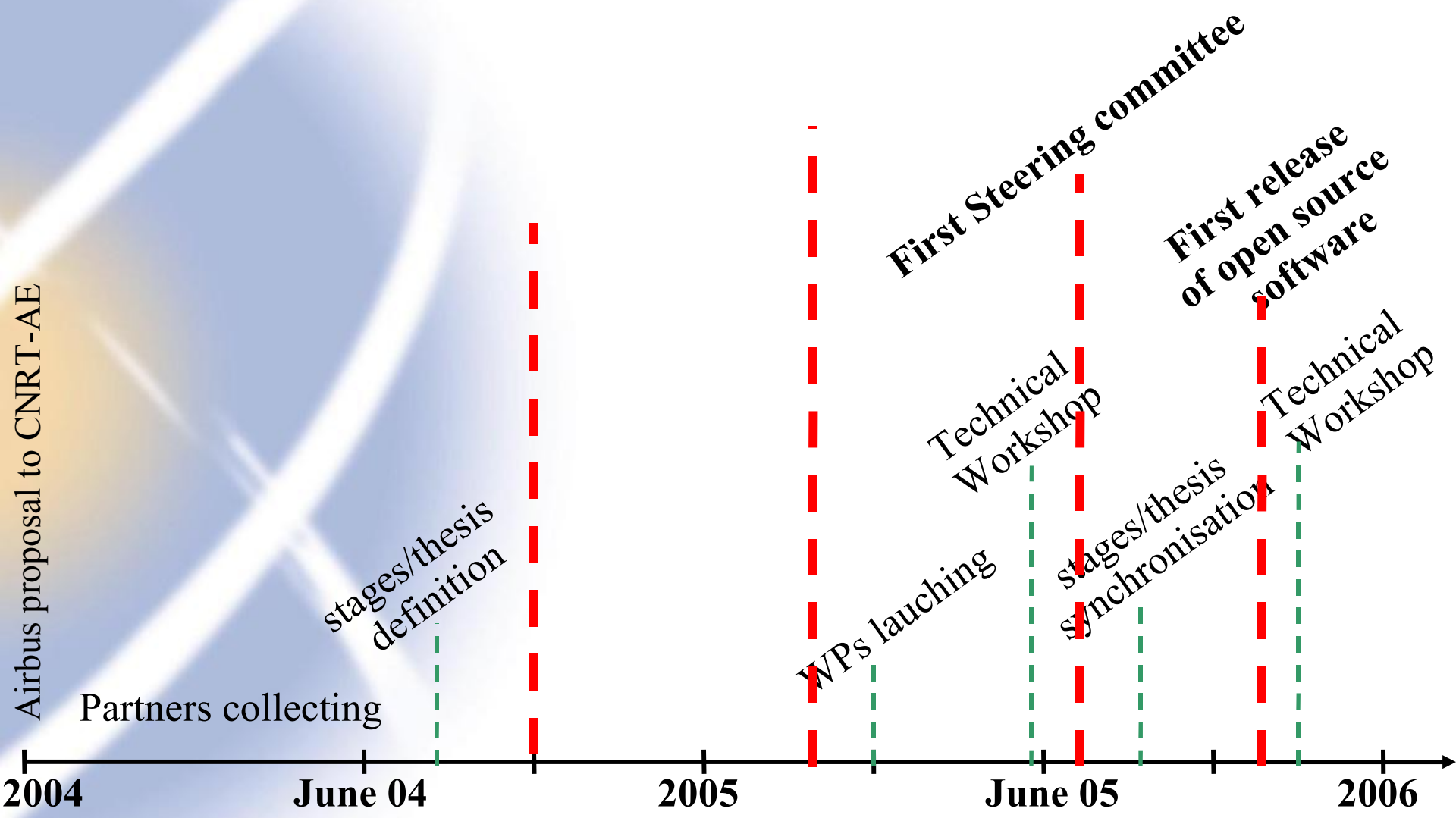
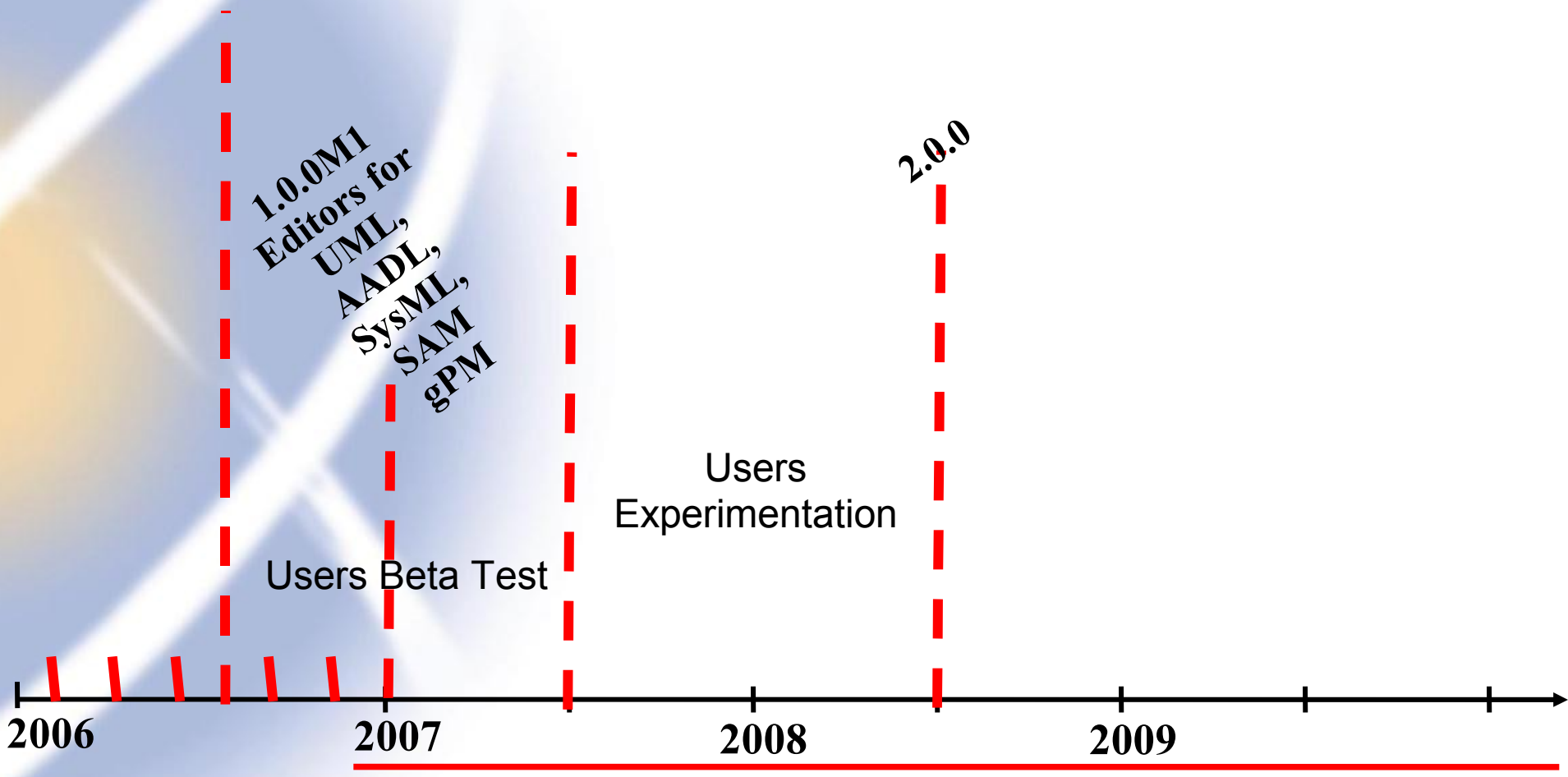


Where we are, Expected soon



Launch National Plateform : Systematics, Minalogic, Aerospace Valley

WHO ?

Industries

AIRBUS
cnes
EADS ASTRIUM
SIEMENS VDO Automotive
THALES
Turbomeca SAFRAN Group
Rockwell Collins
CS COMMUNICATION & SYSTEMES
Atos Origin
SOGETI High Tech
Sopra group

SMEs

Tectosages
anyware TECHNOLOGIES
SODIFRANCE L'inspiration technologique
Ellidiss Technologies
MICOUIN Systems Engineering
AdaCore The GNAT Pro Company
tni SOFTWARE

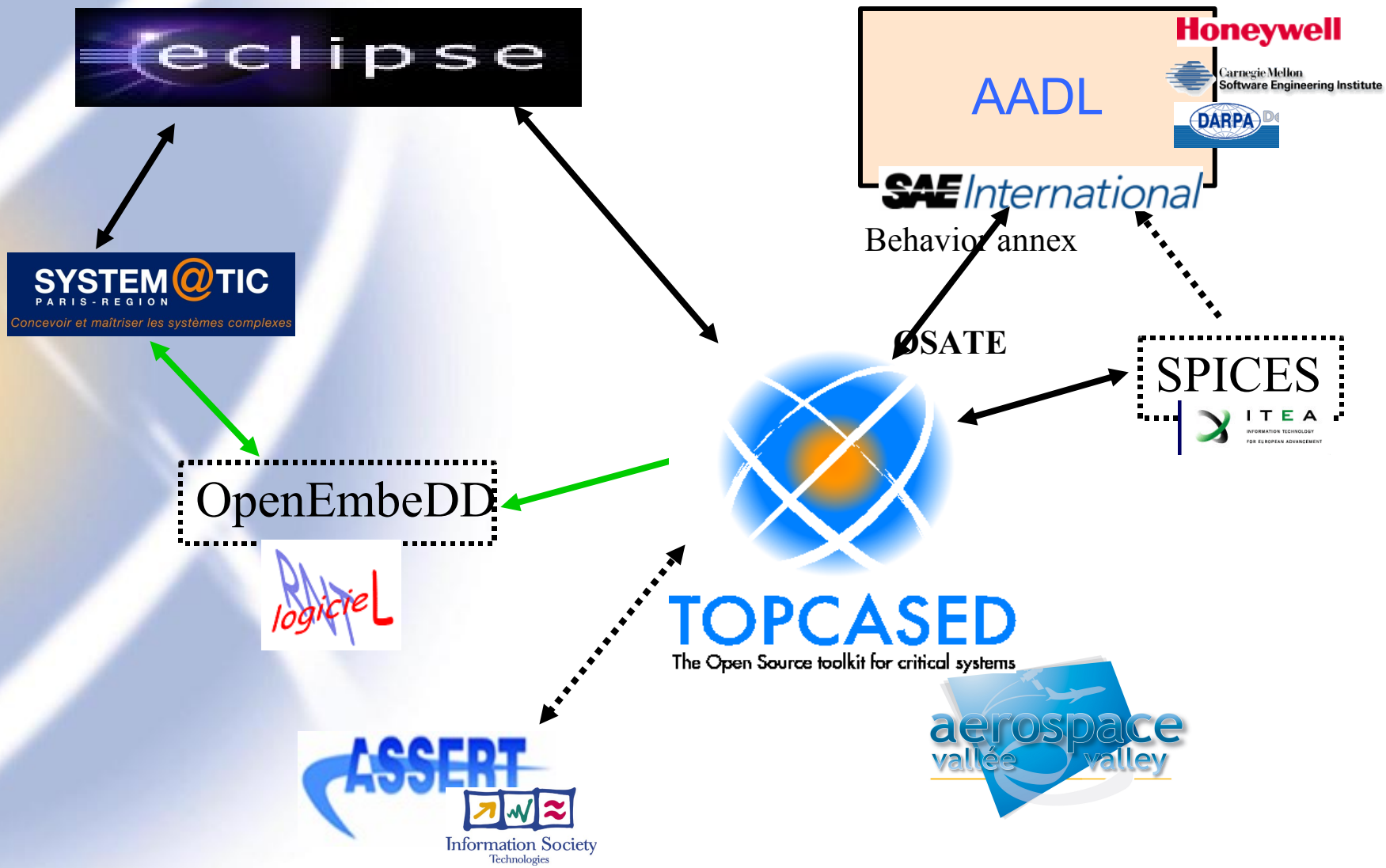
School/Universities

ENSIETA
Universidade Federal de Santa Catarina
mips
ESEO
UNIVERSITÉ PAUL SABATIER TOULOUSE III
INP ENSEEIHT
INSA TOULOUSE

Laboratories

INRIA
VASY
Atlas
IRISA
Triskell
ONERA
FéRIA
LAAS
Carnegie Mellon Software Engineering Institute
Fédération de Recherche en Informatique et Automatique
IRIT Institut de Recherche en Informatique de Toulouse

Collaboration with other projects



Current Results

- Two years working together, better knowledge of the target
- Global studies and survey
- Industry/Academic/School Coordination on thesis and stages
- several technical workshops, a lot of publications and conference talks
- First national funding in November
- Several releases (from 0.5.0 to 1.0 M1) of Open source tools : meta-editor + 4 instances, toolkit infrastructure, communications means. UML, Sildex like, SysML, OSATE/AADL. Import of Rose and Sildex models.

More than 20000 downloads

- Generic process Management tool gPM
- STOOD connection
- Some tools already used for student training : N7, INSA
- Diffusion of the Open Source way of life
- A 2 days workshop in January
- Launch of Quality Development Kit

Coming soon

- Other partners : industries, SMEs, academics, school, SSII, editors.
- Connecting COTS : Matlab, Scade …
- The 1.0.0 in July 2007 synchronized with Eclipse Europa
- New editors dedicated to new modelling language : SysML, LDS, SPEM …
- Integration of formal verification tools with editor.
- Developing model simulation
- First code generators (structural UML > Java/C/Ada, ...), document generator
- Solution for Version/configuration management
- A first version of Traceability tool : TramWay
- A National and International cooperation
- A new 2 days international workshop during 2007
- Integration in Tri-pôle platform
- TOPCASED contribution to Eclipse Modelling Project