

CHORUS



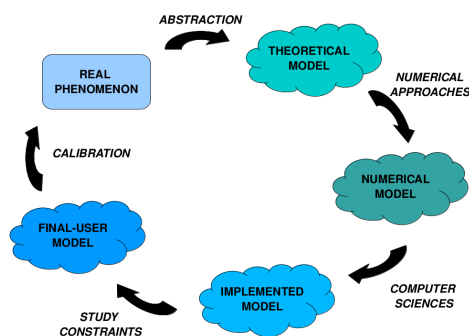
Target: The CHORUS platform tackles the growing need of quantitative uncertainty management during the risk analysis of complex systems in early design, certification or operating phases. By uncertainty management, we mean the ability to quantify, to propagate and to analyse the effects of uncertainties in a given modelling and simulation workflow. This is an opportunity to ramp-up many existing initiatives on the subject as there remain crucial challenges to face the current scalability problems: link with HPC capabilities, development of reduced models and treatment of multi disciplinary problems. CHORUS aims at solidifying the scientific and technological bricks in an adequate eco system (SMEs, industrial groups, academic).

Positioning: CHORUS aims at echoing the initiatives in the scope of uncertainty management and filling remaining gaps for specific topics. As the community already exists with shared scientific and methodological references (GDR MASCOT, OpenTURNS, Dice..), it is very likely to irrigate the different applicative initiatives. This platform will be the cornerstone of scientific, applicative and software activities based on the generic requirements of realistic industrial use-cases: workshops, software publications, new service offer, initial and professional training are planned during the next four years.

“Open” valorization and economic sustainability: The consortium gathers academic and applicative teams that already have a strong experience in the field of uncertainty management. To ensure the transfer capabilities, two thriving SMEs already positioned on this market will take opportunity of CHORUS to enhance their leadership either by commercializing a software solution or by providing services around it (installation, training, study) in an extended “eco-system” dealing with risk management (IRTs, Labex will benefit from the results).

TECHNOLOGICAL OR SCIENTIFIC INNOVATIONS

Innovations are expected in three directions: 1. Methodological treatment of uncertainty management problems for multi disciplinary purposes, 2. Development of new mathematical models and algorithms to face scalability problems (goal-oriented uncertainty analysis, specific reduction techniques using sparsity or multi fidelity), 3. Accessibility of interoperable advanced algorithms linked to HPC capabilities in a recognised open source environment (OpenTURNS).



STATUS - MAIN PROJECT OUTCOMES

- Thematic workshops
- Open source software (Open TURNS, Feel ++)
- Scientific publications

CONTACT

Fabien MANGEANT
EADS INNOVATION WORKS
fabien.mangeant@eads.net
+33 (0)1 46 97 35 66

PARTNERS

Large companies:
EADS INNOVATION WORKS, EDF
R&D CHATOU, FRANCE TELECOM
R&D ISSY-LES-MOULINEAUX

SMEs:
IMACS, PHIMECA ENGINEERING
PARIS

Research institutes, universities:
CEA DEN, ECOLE CENTRALE
NANTES, INSTITUT DE RECHERCHE
MATHÉMATIQUE AVANCÉE --
UNIVERSITÉ DE STRASBOURG,
LABORATOIRE D'INFORMATIQUE
GASPARD MONGE, UNIVERSITE
PARIS 7 DENIS DIDEROT

PROJECT DATA

Coordinator:
EADS INNOVATION WORKS

Co-label(s):
Astech;Aerospace Valley

Call:
ANR MN

Start date:
November 2013

Duration:
48 months

Global budget (M€):
3.0

Funding (M€):
1.5