European Exascale Software Initiative

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EDF
LEADING THE ENERGY CHANGE

Context in Europe

HPC Eur - European High Performance Computing Initiative, "*The Scientific Case for a European Super Computing Infrastructure*", Petascale Computing in Europe - input for the ESFRI Roadmap process, spring 2006

PRACE, Partnership for Advanced Computing in Europe **(PRACE)**

DEISA, Distributed European Infrastructure for Supercomputing Applications

Context in US

DOE Workshop series, http://www.exascale.org/mediawiki/images/a/a7/Messina-doeexa.pdf,

IESP identified US contribution: http://www.exascale.org/iesp/Main_Page

"*The guiding purpose of the IESP is to empower ultrahigh resolution and data intensive science and engineering research through the year 2020 by developing a plan"* that addresses the following objectives*:*

1. *Make a thorough assessment of needs, issues and strategies*
2. *Develop a coordinated software roadmap*
3. *Provide a framework for organizing the software research community*
4. *Engage and coordinate vendor community in crosscutting efforts*
5. *Encourage and facilitate collaboration in education and training*

European Exascale Software Initiative (EESI)

Main goals

Build a **European vision and roadmap** to address the **challenge of performing scientific computing** on the new generation of computers which will provide multi Petaflop performances in 2010 and Exaflop performances in 2020.

- Investigate how Europe is located, its strengths and weaknesses, in the overall international HPC landscape and competition
- Identify priority actions
- Identify the sources of competitiveness for Europe induced by the development of Peta/Exascale solutions and usages
- investigate and propose programs in education and training for the next generation of computational scientists
- Identify and stimulate opportunities of worldwide **collaborations**

European Exascale Software Initiative (EESI)

Main tasks

Coordination of the European participation in IESP

Make a thorough assessment of needs, issues and strategies
Develop a coordinated software roadmap
Provide a framework for organizing the software research community
Engage and coordinate vendor community in crosscutting efforts
Encourage and facilitate collaboration in education and training

Cartography of existing HPC projects and initiatives in Europe, US and ASIA

Coordination of "*disciplinary working groups*" at the European level

- ***Four groups "****Enabling technologies for Exaflop computing"*
- ***Four groups "****Application Grand Challenges"*

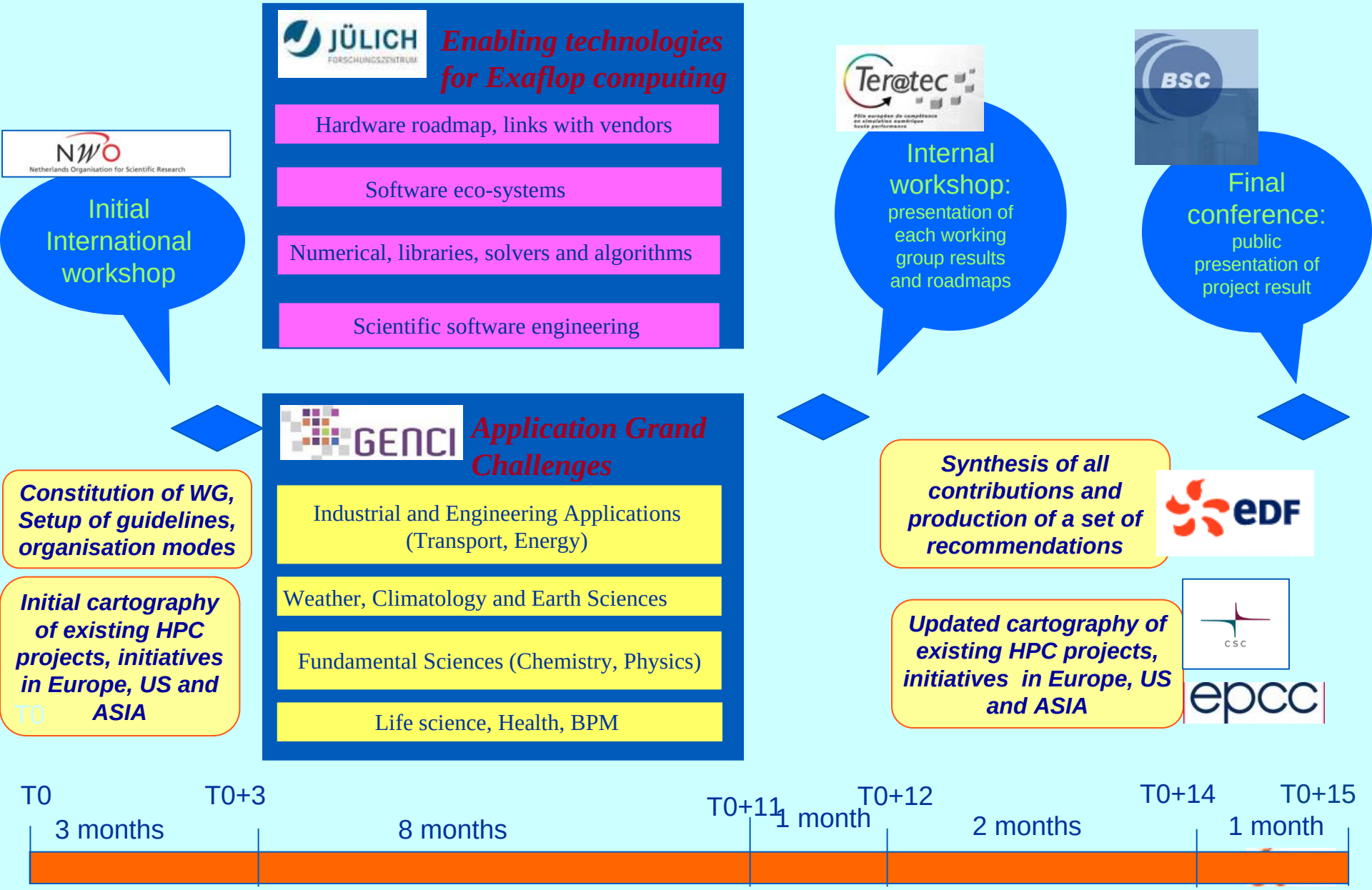
Synthesis, dissemination and **recommendation** to the European Commission

European Exascale Software Initiative (EESI)

Expected outputs

A **set of recommendations** shared by the European HPC community, on software - tools, methods and applications - to be developed for this new generation of supercomputers.

European Exascale Software Initiative AGENDA



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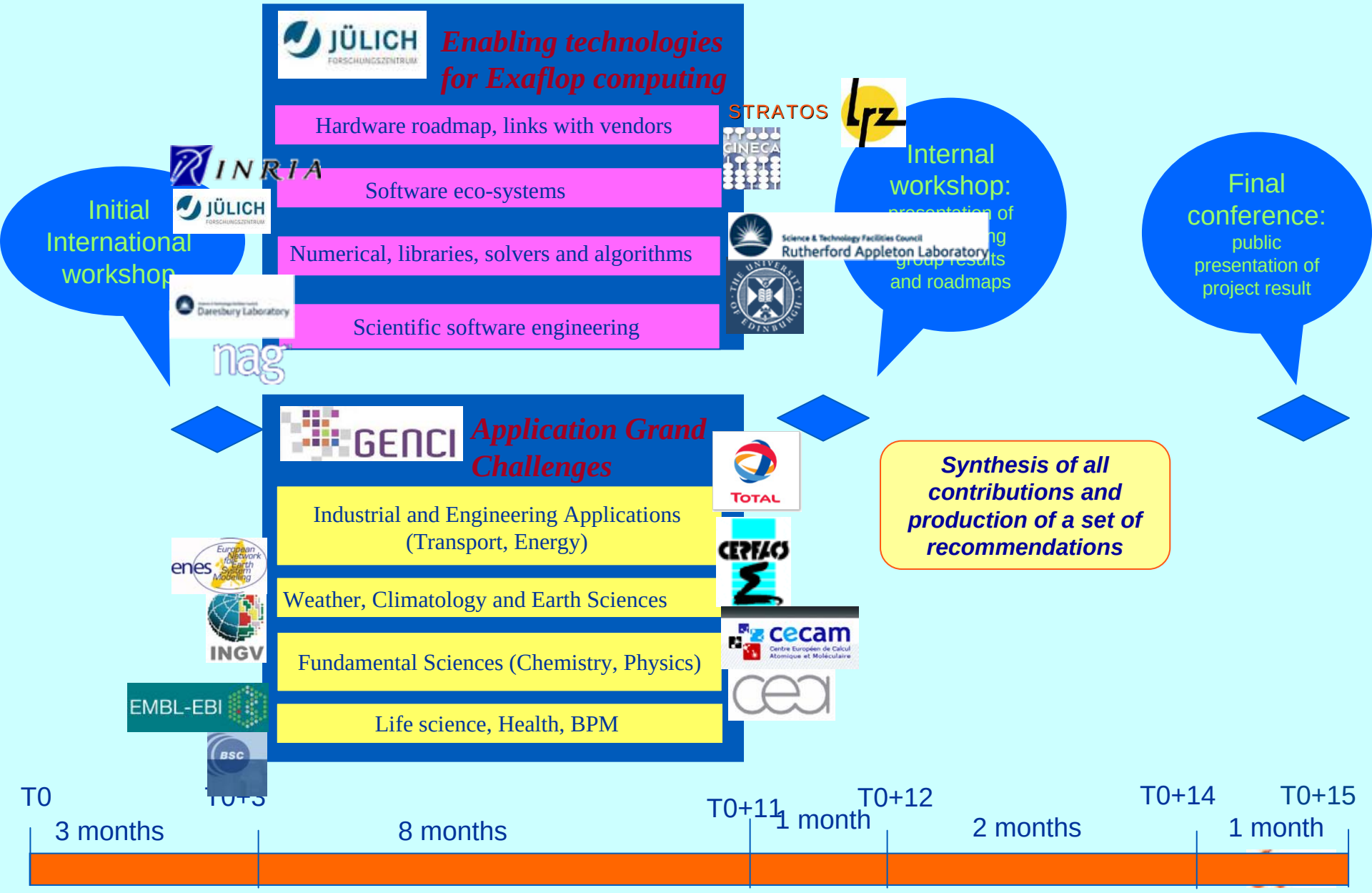


European Exascale Software Initiative AGENDA

NWO Netherlands Organisation for Scientific Research

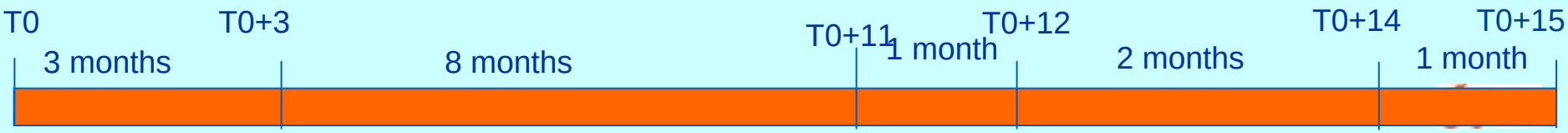
JÜLICH FORSCHUNGSZENTRUM

THE UNIVERSITY of TENNESSEE KNOXVILLE

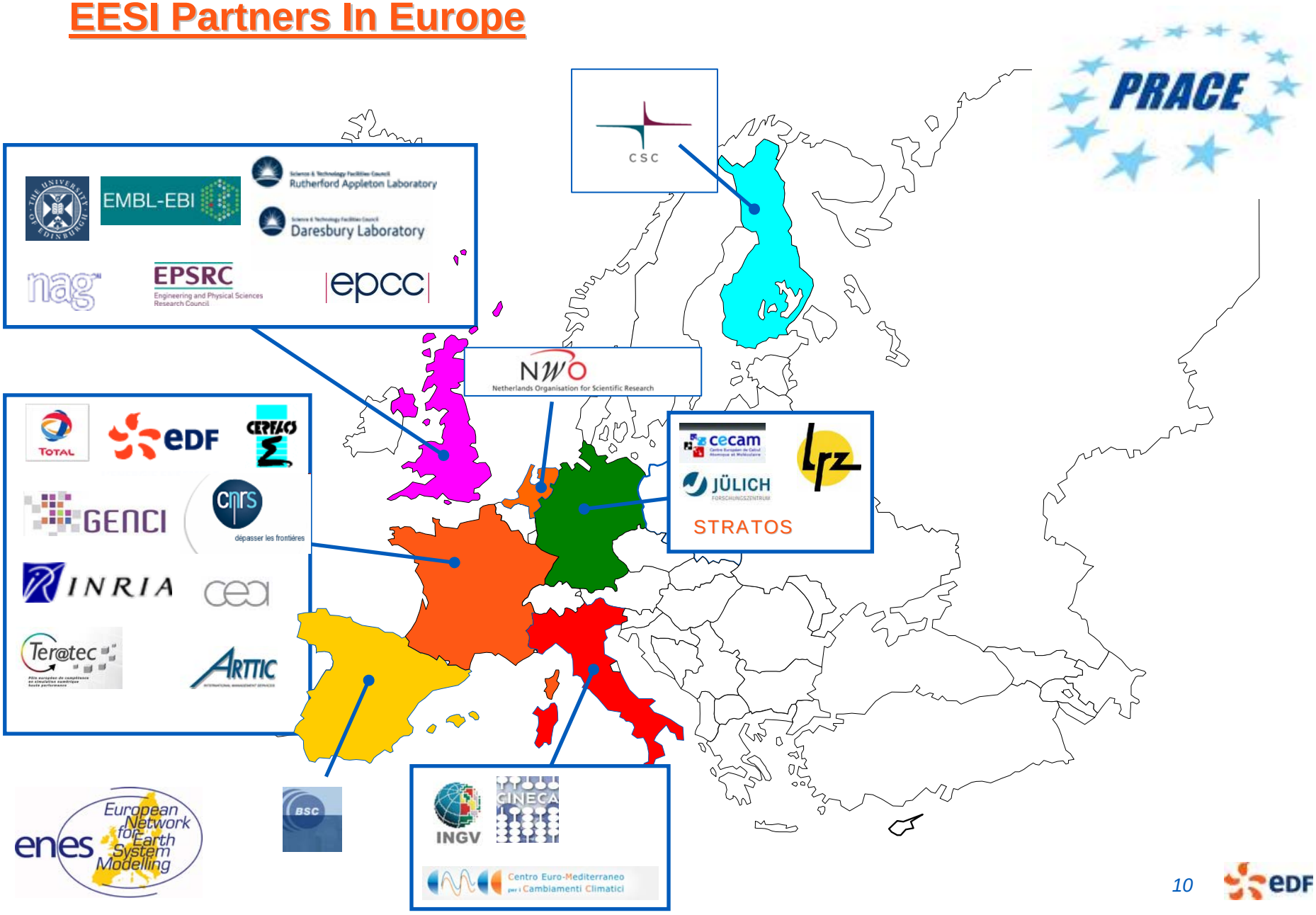
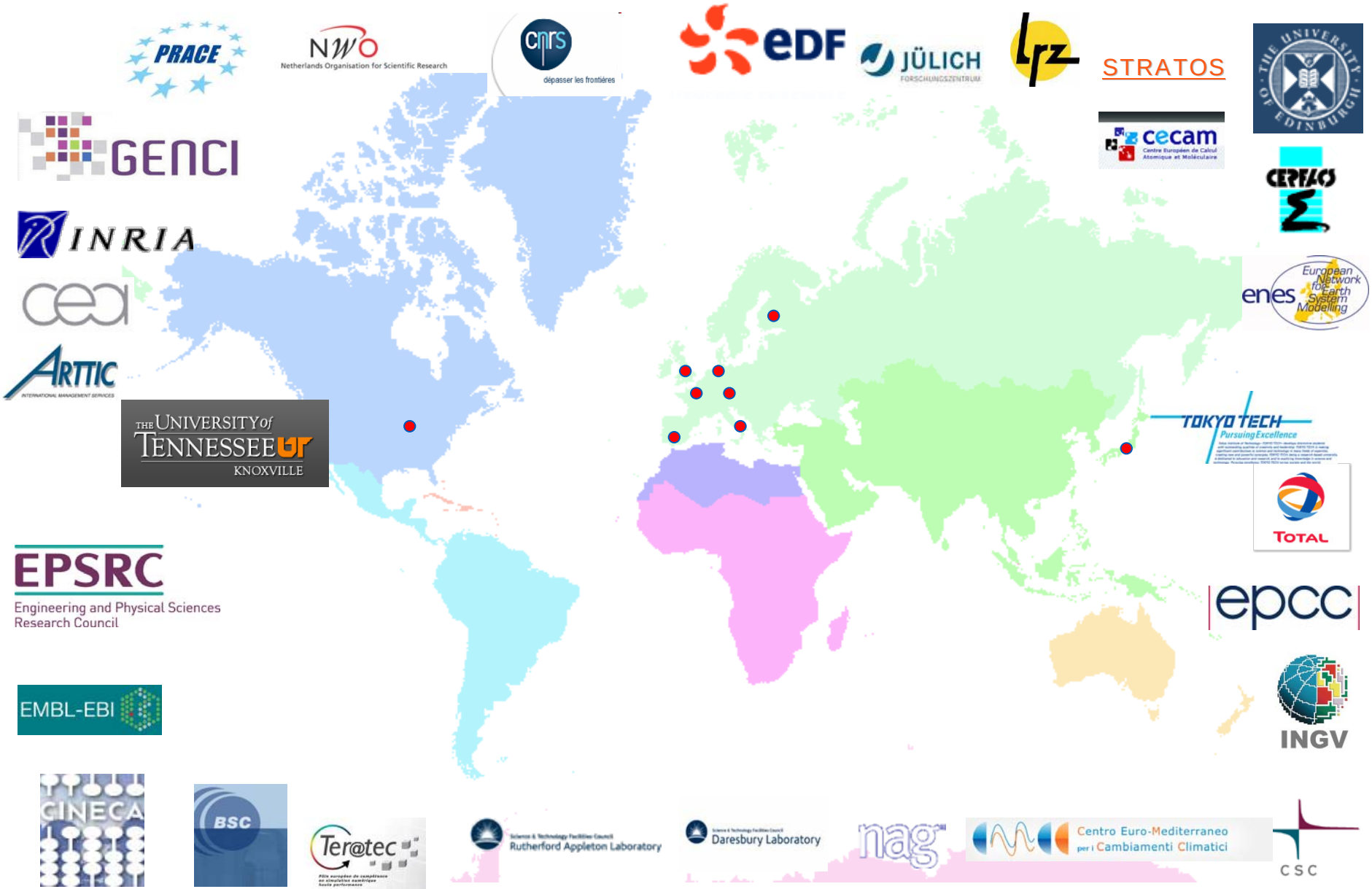
Link with US and ASIA

Preparation and participation to IESP boards/meetings, transfer to the EESI partners/contributors, identification of US, ASIA and European cross actions

TOKYO TECH Pursuing Excellence



EESI Partners In Europe



EESI Partners around the world