European Middleware Initiative (EMI)

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http://www.eu-emi.eu

Project Overview

- The European Middleware Initiative (EMI) project represents a close collaboration of the major European middleware providers - ARC, gLite, UNICORE and dCache - to establish a sustainable model to support, harmonise and evolve the grid middleware for deployment in EGI, PRACE and other distributed e-Infrastructures

- Its main objectives are to:

  - **Harmonize** the existing distributed computing middleware implementations by removing duplications and simplifying usage and maintenance
  - **Evolve** the middleware by addressing the requirements of the growing infrastructures as they become more stable and pervasive
  - **Support** users by implementing best-practice service-oriented procedures based on clear Service Level Agreements
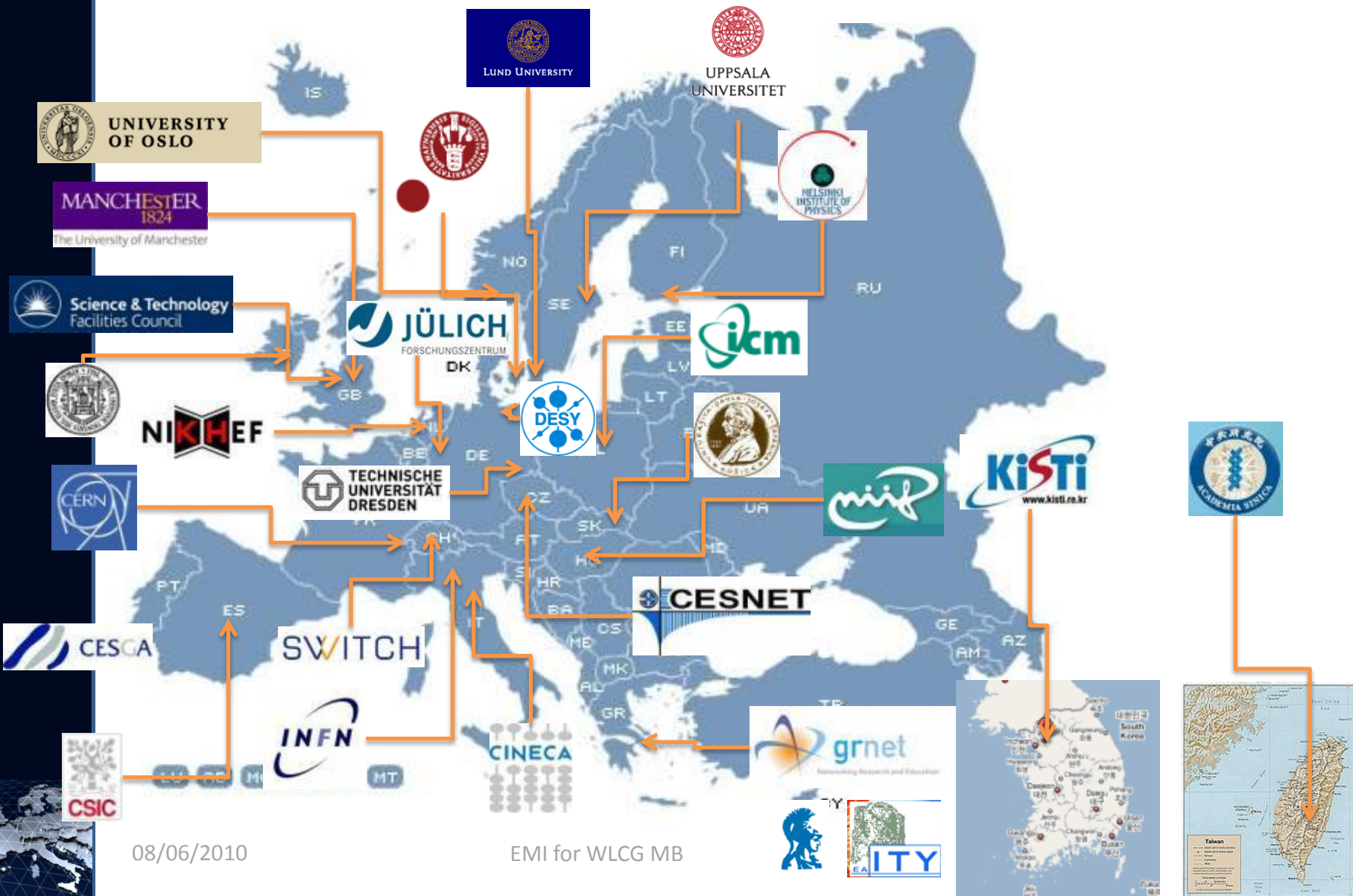
FP7 Program

FP7 Capacities Work Programme 2010: Infrastructures

- Call **FP7-INFRASTRUCTURES-2010-2**

- Sub-topic: 1.2.1.3 – Middleware and repositories

- Develop middleware that strengthens European presence by consolidating or even going beyond existing DCIs (e.g. exploiting emerging developments like virtualisation), while improving their stability, reliability, usability, functionality, interoperability, security, management, monitoring and accounting, measurable quality of service, and energy efficiency

- Starting date: May 1st

- Duration: 3 years

- Total budget: 23M € (12M € from EC + 11M € from partners)

- Effort: 64 FTEs/year (88% for technical activities)

Technical Objectives

- **Usability**: improve the usability of the distributed computing middleware by simplifying its configuration, deployment, management and functionality

- **Security**: harmonize security management across implementation and integrate new user-friendly security methods to hide the complexity of certificates handling

- **Standardization**: implement relevant and usable community standards and drive the definition and adoption of new required specifications

- **Interoperability**: enhance the interoperability between HTC middleware implementations, between HTC and HPC computing models and between different, geographically distributed infrastructures

- **Innovation**: evolve and innovate the middleware as needed to satisfy the requirements of the user communities, integrating emerging technologies as virtualization and cloud computing in the existing stable and secure distributed computing services

- **Commercial relationships**: increase the use of commercial software in the distributed computing middleware, decrease maintenance costs and improve the adoption and support by commercial companies
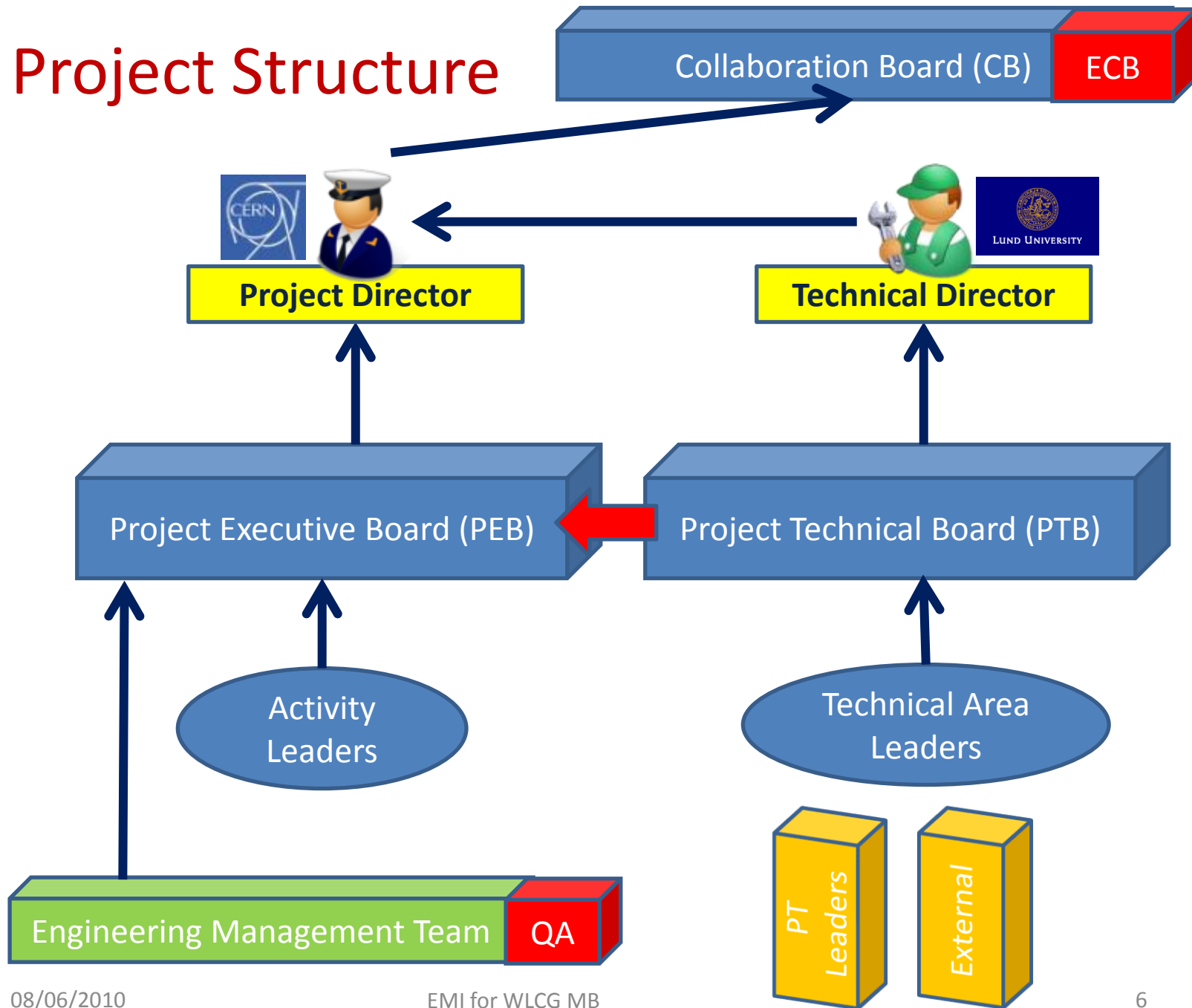
Partners (26)

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Project Structure

Collaboration Board (CB) — ECB

Project Director

Technical Director

Project Executive Board (PEB)

Project Technical Board (PTB)

Activity Leaders

Technical Area Leaders

Engineering Management Team — QA

PT Leaders

External

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Technical Areas

Compute Services	INFN	**A-REX, UAS-Compute, WMS, CREAM, MPI, etc**
Data Services	DESY	**dCache, StoRM, UAS-Data, DPM, LFC, FTS, Hydra, AMGA, etc**
Security Services	HELSINKI INSTITUTE OF PHYSICS	**UNICORE Gateway, UVOS/VOMS/VOMS-Admin, ARGUS, SLCS, glExec, Gridsite, Proxyrenewal, etc**
Infrastructure Services	CERN	**Logging and Bookkeeping, Messaging, accounting, monitoring, virtualization/clouds support, information systems and providers**
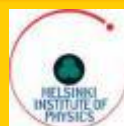
High-level Work plan

Development (under definition)

Year 1:

security revision and enhancements, generalization of messaging services, security for data management, gsi removal, consolidation of functions across services (common AuthN library, VOMS, common Info Sys)

Year 2:

full integration of messaging in the services, definition, improvement, implementation of standards (compute, data, accounting), DM enhancements (POSIX-compliance ? common File Catalogs ? Depend on current DM discussions), resource virtualization, support for clouds, mpi

Year 3:

Additional requirements, move packages into OS distributions, etc

Support and maintenance

Continuous activity done in collaboration with the middleware providers (ARC, gLite, UNICORE, dCache) with specific EMI funding (30%-50% of available funding).

No disruption in the support of infrastructures and users!

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Maintenance Releases

- **gLite 3.1**: supported by EMI together with the gLite Collaboration, to be gradually phased out as support for SL(C)4 ends in Fall 2010

- **gLite 3.2**: supported by EMI together with the gLite Collaboration until required (to be defined). Includes bug fixes and new features as needed, but with commitment to backward-compatibility

  https://twiki.cern.ch/twiki/bin/view/EGEE/LCGprioritiesgLite

- **ARC 0.8.x**: supported by EMI together with the ARC Collaboration and NDGF until required Includes bug fixes and new features as needed, but with commitment to backward-compatibility

  http://wiki.nordugrid.org/index.php/ARC_v0.8

- DSA1.1 (EMI Maintenance and Support Plan) describes in details how this will be managed – June 2010

Major Releases

- The EMI major releases are not full releases of complete software stacks, but ways of introducing new functionality affecting all MW distributions in a coordinated way

- New functionality is released according to the (periodically revised) work plan and in agreement with the infrastructures

- There may be cases of backward incompatibilities, which will be fully discussed and accompanied by clear migration plans

- New maintenance releases of ARC, gLite and UNICORE components beyond the old maintenance releases will be managed as part of these EMI releases

- **EMI 1.0**: March-April 2011
- **EMI 2.0**: March-April 2012
- **EMI 3.0**: March-April 2013

Collaborations

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