

DECIDE

From neurological research to clinical praxis: a European e-Service to support the early diagnosis of neurodegeneration

Project Coordinator

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Project participants:

1 CONSORTIUM GARR	IT
2 CNR	IT
3 CONSORZIO COMETA	IT
4 FATEBENEFRAPELLI	IT
5 UNIVERSITY SAN RAFFAELE	IT
6 UNIVERSITY OF GENOA	IT
7 UNIVERSITY OF FOGGIA	IT
8 FONDAZIONE SDN	IT
9 MAAT FRANCE	FR
10 IMPERIAL COLLEGE	UK
11 UNIWERSYTET WARSZAWSKI	PL
12 CENTRE HOSPITALIER UNIVERSITAIRE DE TOULOUSE	FR
13 ALZHEIMER EUROPE	LU

EC Call:

FP7-INFRA-2010-2 - VRC

Contract n°: RI-261593

Project type: CP-CSA

Duration: 24 months

Total budget: 2'580'558€

EC Funding: 2'399'998€

EGI User Forum, Vilnius, 11-14th April 2011:

F. Galeazzi on behalf of DECIDE

The DECIDE project goals

- To provide the Neuroscientific and Medical community with a **dedicated Grid-based e- Infrastructure**
 - relying on Neugrid and GEANT
- To deploy a **secure and user-friendly service** for the **early diagnosis and research** on dementia and other brain diseases
 - linking large distributed DBs of multimodal neuroimages
- To **validate** the e-Infrastructure and the services
 - through application to real patient cases
- To propose a **long-term vision** for the **sustainability** of the e-Infrastructure
 - and its extension to new communities and pathologies
- To **disseminate the results** and provide **training programmes**
 - promoting the adoption of the DECIDE e-Infrastructure and service.

Strategic ideas behind the project

Providing the European Virtual Research Community with transparent access to highly specialized tools and techniques not only for research purposes, but also for clinicians

CIVET/ADABOOST - RMI images

GridSPM - PET/SPECT images

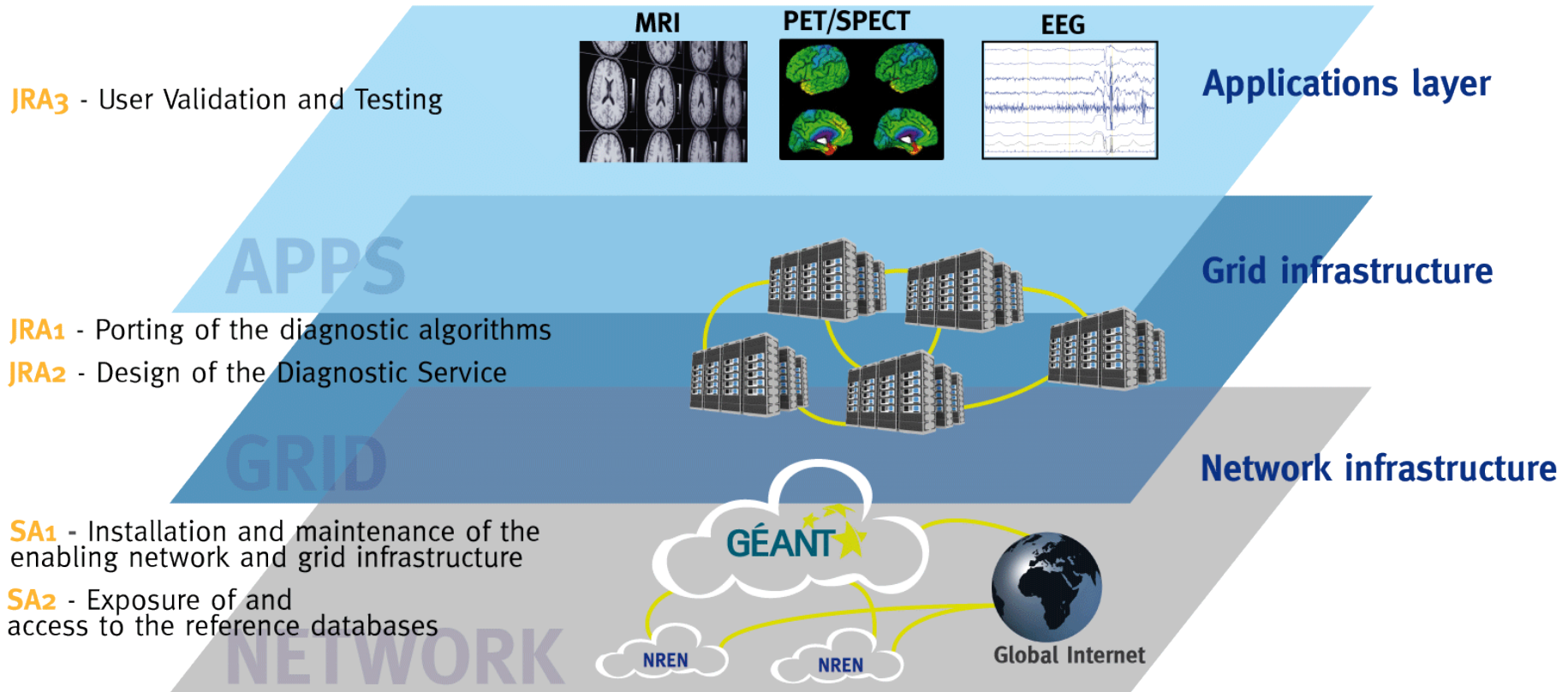
EEG patterns

Building a European reference e-Service

Including its own e-Infrastructure

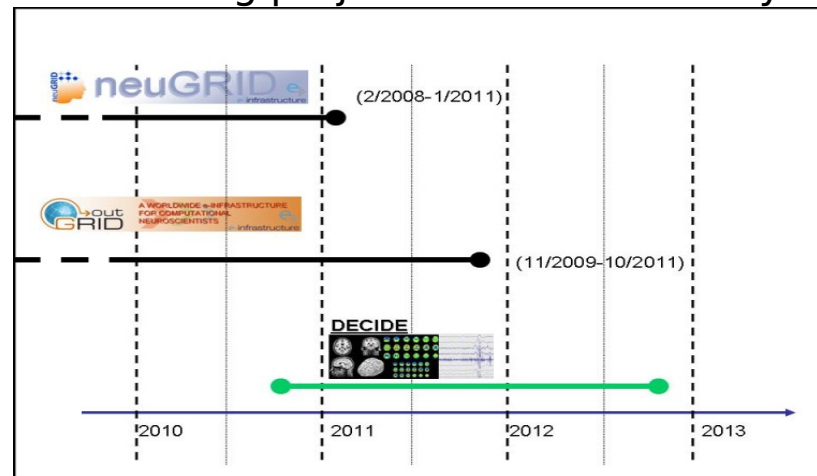
Progressive uptake of the e-Science paradigm in the domain of neurology

DECIDE layered structure



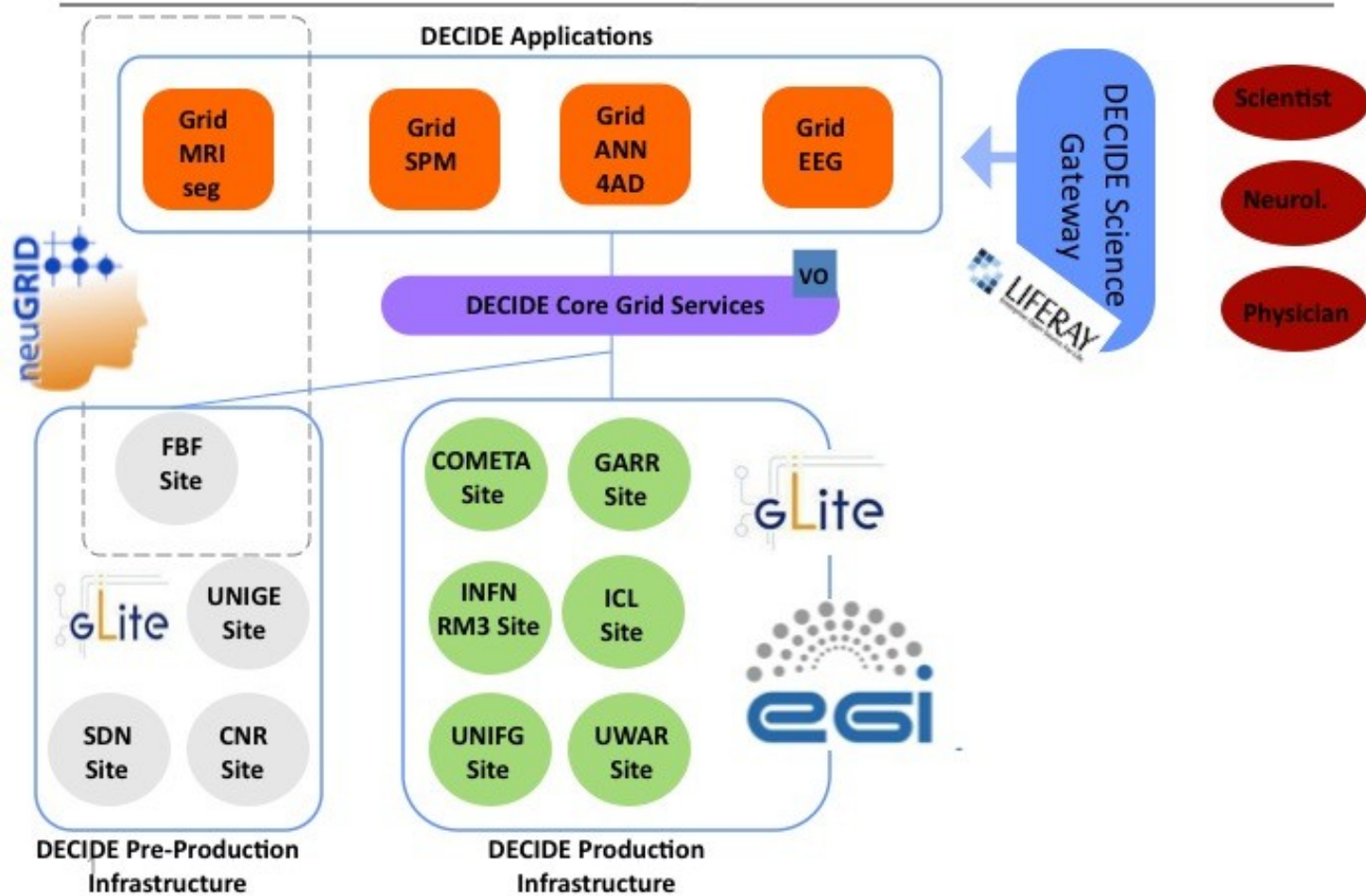
DECIDE reference infrastructures

- Designed with NeuGRID starting core as a reference infrastructure
- MRI-based algorithms developed within NeuGRID will be endorsed by DECIDE
- OutGRID will act as the external gateway to liaise to other international infrastructures (e.g. LONI, CBRAIN)
- Both OutGRID & NeuGRID will also provide their outcomes w.r.t. data access policies, user requirements and standards to the DECIDE project
- Transferring results among projects will be eased by their expected timing



GridSPM algorithm, PET/SPECT based, is already deployed as diagnostic pilot at national scale

DECIDE Infrastructure



Training activities

- **Training for application developers and diagnostic algorithm experts**, where trainees will work in close collaboration with Grid tutors and learn how to interface their applications and algorithms with the services and run them on DECIDE infrastructure. These kinds of training will help speeding up the process of application porting.
- **Training for end-users**, that will provide a comprehensive introduction to the DECIDE infrastructure and service and a stepwise tutorial for their exploitation.
- **Training for Expert Qualification**, that will provide advanced courses for specialists able to use the DECIDE Gridified software and data to extract neuroimaging markers. At the end of the course, the candidates will submit to a final examination to testify they can correctly use the DECIDE Diagnostic service.

Framework for cooperation and integration

1/2

- Network Level collaboration with GEANT and the European NRENs
 - **Community requirements**
- European Grid Initiative (EGI) and European Middleware Initiative (EMI)
 - **Standards**
- US-ADNI (US Alzheimer's Disease Neuroimaging Initiative) and NEST-DD (Network for Efficiency and Standardization of Dementia Diagnosis)
 - **Medical Data Collection compliance** with common standards
- EADC, neuGRID, LONI, Brain Tuning, CBRAIN, outGRID, NEST-DD and ADDNEUROMED projects
 - Further add **other diagnostic algorithms**
 - North-American/European **standards**
 - **Legal/ethical** issues
 - Discovery/validation of **neuroimaging markers**
- PHARMACOG (the largest European project on the study of Alzheimer's disease)
 - state-of-art studies on **neuroimaging AD markers**
 - huge **neuroimaging database**

Expected DECIDE exploitation



**DECIDE AUP
approval/authorization
procedure**

**Ethical & legal,
business model &
extension**

**Scientific
international
Collaboration**

**D
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**Experts in Medical Physics,
Mathematicians, Neurologists,
etc.**

**Algorithms, database,
Grid repository, users**

**neuGRID, LONI, CBRAIN,
outGRID, EADC,
PHARMACOG**

Data collections

**US-ADNI, NEST-DD MEDICAL
PHARMACOG
DATA COLLECTION**

**Infrastructure and
middleware standards**

**EGI AND EMI STANDARDS
AND COMMUNITY
REQUIREMENTS**

Network access

**GEANT & NRENs =
EUROPEAN PLATFORM FOR
RESEARCH**

**Medical
Data Collection**

**Harmonization
with EGI-EMI standards**

**GÉANT
collaboration & support**

Web portal

The screenshot shows the DECIDE web portal homepage. At the top is a navigation menu with links: Home, Project, Documents, Applications, Events, Newsroom, Partners' Area, and Contacts. The main header features the DECIDE logo, which consists of a stylized head profile with a brain-like pattern, followed by the text "DECIDE" and the tagline "Diagnostic Enhancement of Confidence by an International Distributed Environment". To the right of the logo is a decorative graphic of overlapping blue squares. Below the header is a search bar and a main content area with several news items. The first item is titled "DECIDE" and dated "Thursday, 30 December 2010 13:34". It includes an image of a person pointing at a computer monitor and a text block describing the project's aim. Below the text is a "Read more" button. The second item is titled "Watch the DECIDE demonstration!" and dated "Tuesday, 12 April 2011 16:02". It includes a text block and a "Read more" button. The third item is titled "New media available!" and dated "Tuesday, 12 April 2011 15:45". To the right of the main content area are three vertical sections: "International aspects" with a European Union flag image and text about the consortium's beliefs, "Latest News" with a link to a forum, and "Upcoming Events" with links to a demo and a conference.

Home | Project | Documents | Applications | Events | Newsroom | Partners' Area | Contacts

DECIDE

Diagnostic Enhancement of Confidence by an International Distributed Environment

search...

DECIDE

Thursday, 30 December 2010 13:34 |



Aim of DECIDE (Diagnostic Enhancement of Confidence by an International Distributed Environment) is to design, implement, and validate a GRID-based e-Infrastructure building upon neuGRID and relying on the Pan-European backbone GEANT and the NRENs. Over this e-Infrastructure, a service will be provided for the computer-aided extraction of diagnostic markers for Alzheimer's disease and schizophrenia from medical images.

Project activities started on **1 September 2010**.

[Read more about the project progresses >>](#)

International aspects



The DECIDE consortium strongly believes that a European, and even wider approach is needed to tackle the problem of AD and neurodegeneration in general. Furthermore the rapidly ageing of society, that Europe and other developed economies has to cope with, make the societal emergency of the phenomenon more dramatic and resource-consuming.

[Read more](#)

Latest News

> [DECIDE first live demonstration at EGI User Forum!](#)

Upcoming Events

> [DECIDE demo at EGI User Forum: 11-15 April 2011 Vilnius](#)

> [21st Alzheimer Europe Conference](#)



Applications database

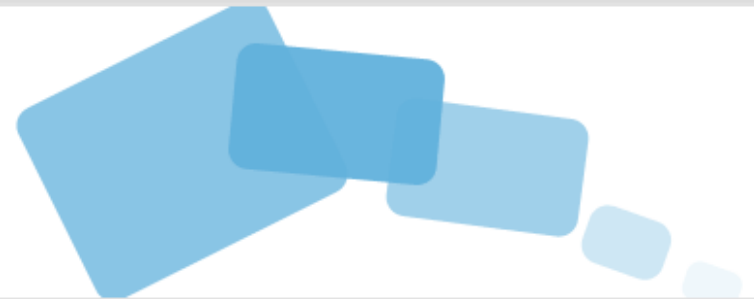
[Home Application](#)

[Home](#)

[The Project](#)

[Documents](#)

[Wiki](#)



ApplicationRegistry

APP. NAME	DOMAIN	COUNTRY	INSTITUTION(s)	STATUS
AdaBoost	Neuroimaging Researchers	USA	LONI UCLA	2
GridSPM	Digital image processing methods	Italy	CNR	3
GrIEEG	Neuroinformatics	Poland	UWAR	2
GrIEEGDATA	Neuroinformatics	Italy	UNIFG	1
GrIEEGQUALITY	Neuroinformatics	Italy	UNIFG	2
GrIEEGSOURCE	Neuroinformatics	Italy	UNIFG	2
GrIEEGSTAT	Neuroinformatics	Italy	UNIFG	1

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Thank you for your kind attention!

For further information please contact

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