

Healthgrids, from Revolution to Evolution

Experiences from European Projects

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maat – Stages of Growth

1998- Stage 1

Idea

2000- Stage 2

Start-Up

2004- Stage 3

Development

2007- Stage 4

Growth

Foundation Process

*Virtual Knowledge & Maat Gknowledge
Incubation, I+D+i, Raising Public Awareness*

Partners Network

*Maat Gknowledge
Internationalization*





- **300 Profesionales**
- **20 Millones Euros Ingresos**
- **Crecimiento en nuevos Sectores de Actividad**
- **Promoción Activas de Alianzas con los principales Centros de I+D+i**



CONSULTORIA

TECNOLOGÍA

OUTSOURCING

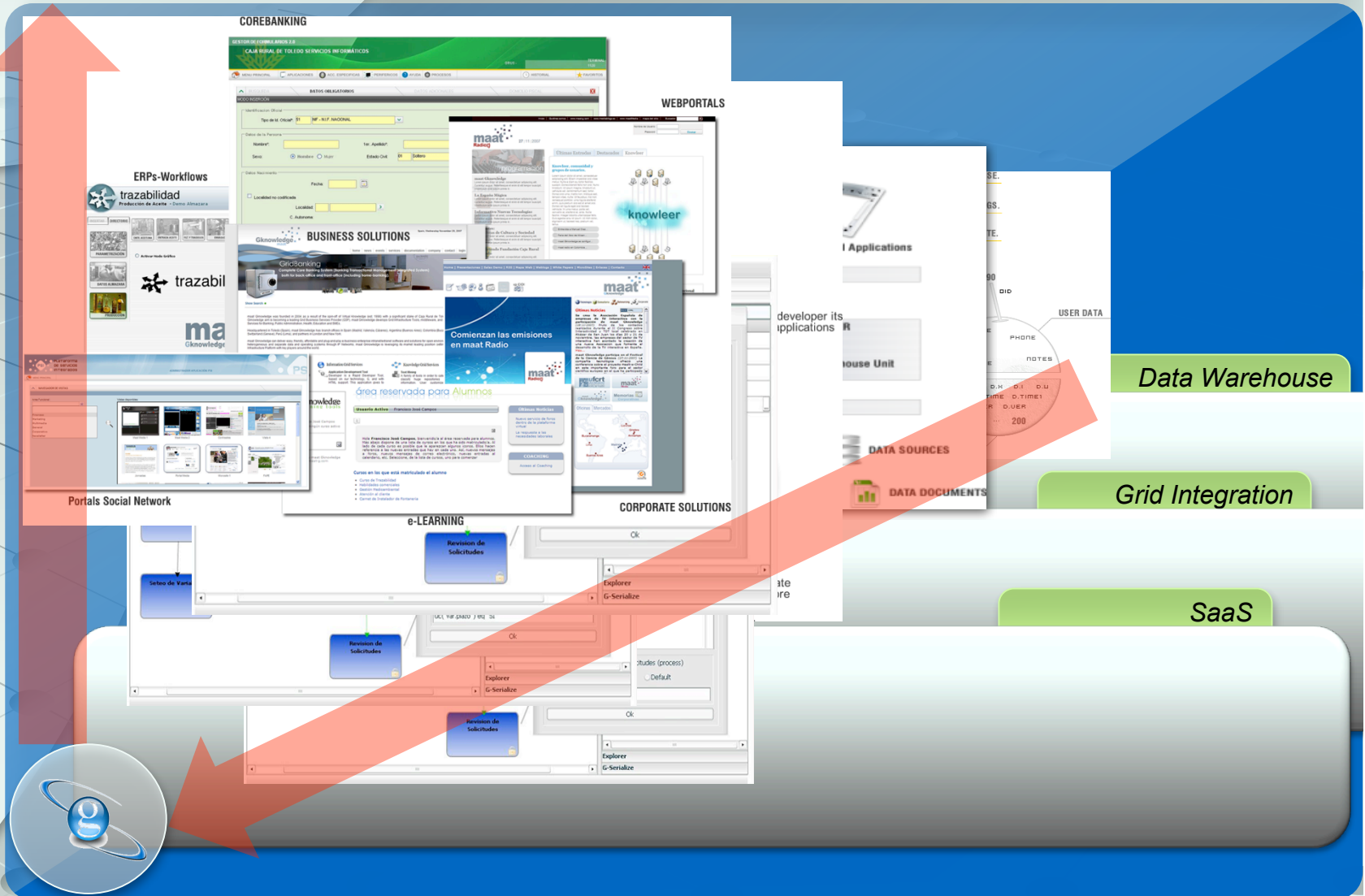
CORPORATE

I+D+i



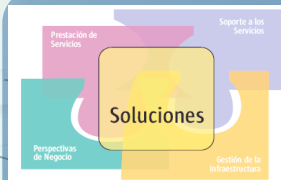
maat Portfolio (1)

Horizontal Solutions



maat Portfolio (2)

Vertical Solutions



TRAZABILIDAD



Is about Core Banking

- Integrated transactional banking system
- CRM,
- Wealth management,
- Corporate banking,
- Trade Finance,
- Functional services



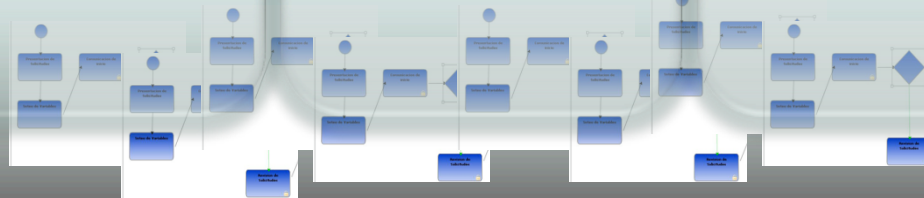
Is about e-Administration

- Facilitate access to information,
- Electronic access points,
- Security and privacy on citizens data,
- System interoperability,
- eServices to citizens such as electronic transactions,
- Compliant with LAECAP law



Is about Healthcare ICT

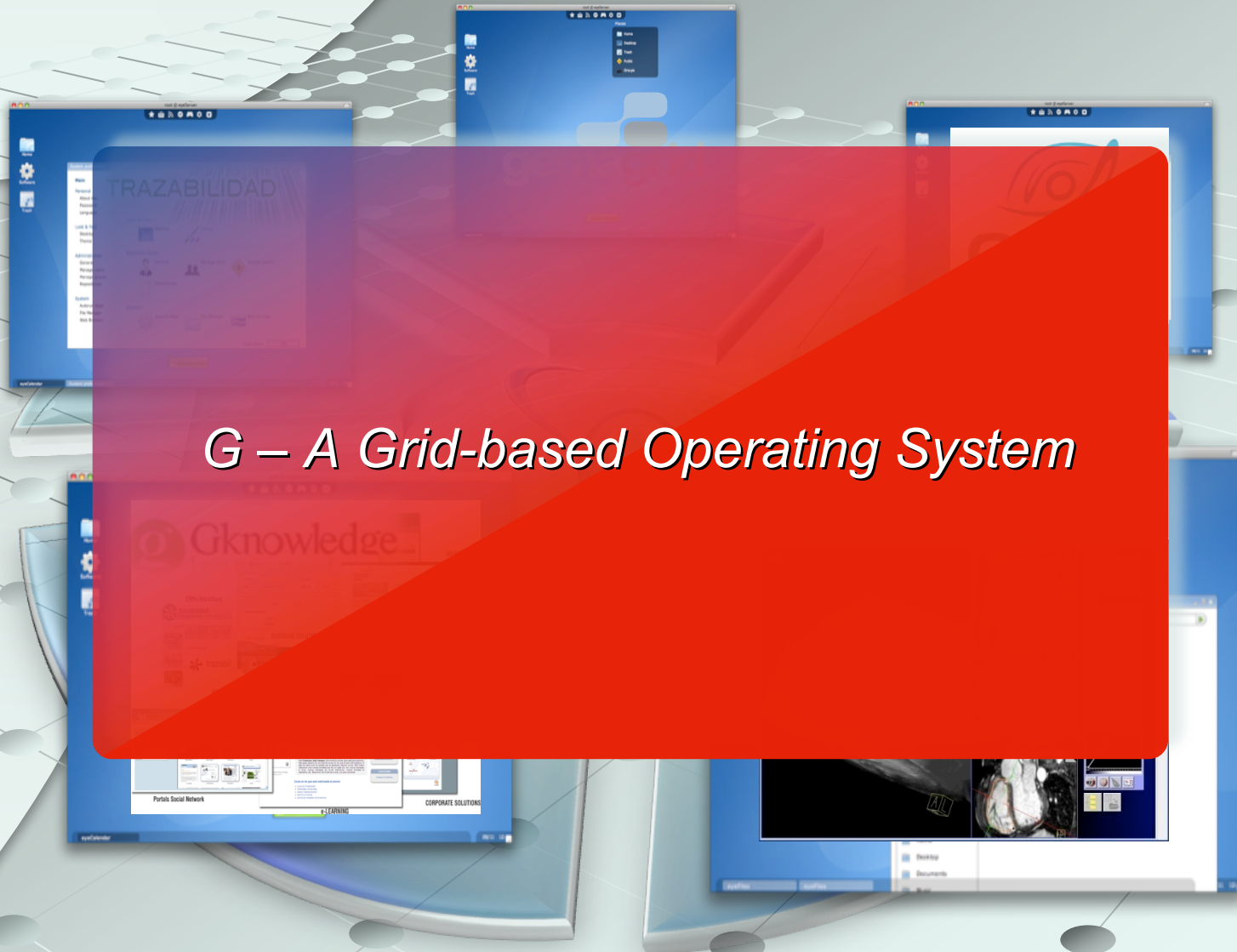
- Research infrastructure,
- Multi-level data integration,
- Multi-centre network,
- Security and privacy conformance,
- Multi-backends abstraction,
- DICOM compliant



maat Portfolio (2)



G – A Grid-based Operating System





Awards

*maat received a "Gold Medal" Award
at the 2007 "Salon International des Inventions de Genève"*



*Maat ranked 1st Best Live Demo at the
2008 HealthGrid Conference, June in
Chicago, US*



s "Runners Up"

in Budapest , Hungary for its Healthgrid Platform



*Maat quoted as "Cool Vendor" by GARTNER in Platform and
Integration Middleware*

Gartner

Research

Publication Date: 27 March 2008

ID Number: G00155600

**Cool Vendors in Platform and Integration Middleware,
2008**



Healthgrid Platform and Innovative Applications



Is about Healthcare ICT

- Research infrastructure,
- Multi-level data integration,
- Multi-centre network,
- Security and privacy conformance,
- Multi-backends abstraction,
- DICOM compliant

- Today healthcare is facing a Challenge:

- *Fewer Patient Errors*
- *Better Health Outcomes*
- *Reduce Patient Journeys at the Hospital*
- *Decentralize Health Services*

Improve Healthcare Quality of Services while
Reducing Costs

*Information and Communication Technologies
are the solution...*





Healthgrid (1)

The Internet, the Web and the GRID



eGEE
Enabling Grids
for E-science

*Courtesy of EGEE Project

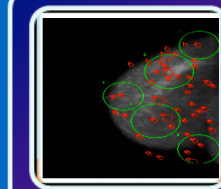
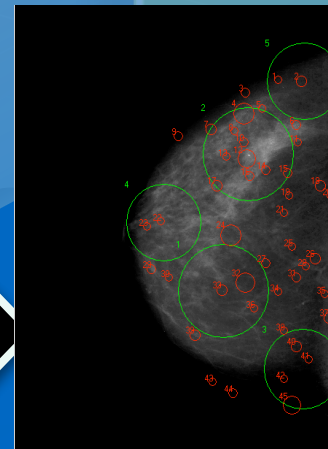
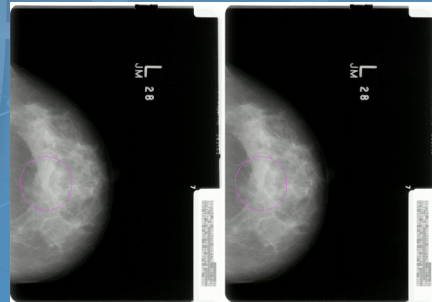
Grid

The environment for sharing
computing resources over the Web...



Mammogrid+

A Grid-powered Mammography Database



Oncology

- Breast Cancer (micro-calcifications and masses)

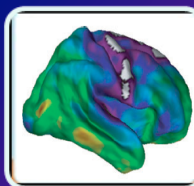
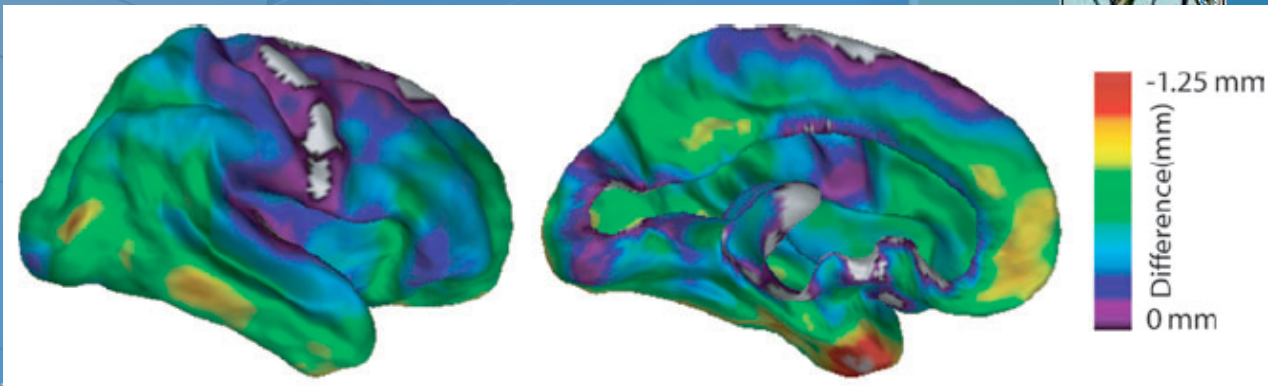


neuGRID

A Grid-based e-Infrastructure for Data Archiving and Computing Intensive Applications in neurosciences

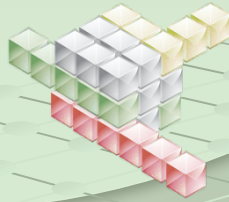
Question

A Marker of Alzheimer's progression?



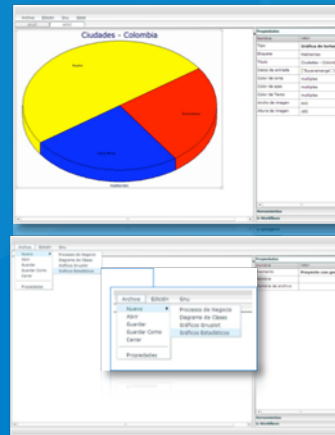
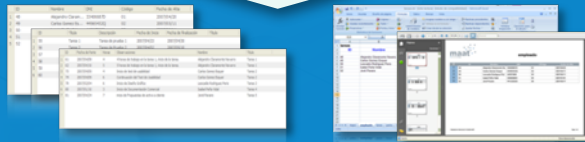
Neurology

- Degenerative diseases



Pharmaco-Epidemiology

Multi-centre Pharma Grid-based
Data Warehouse for Epidemiological Studies

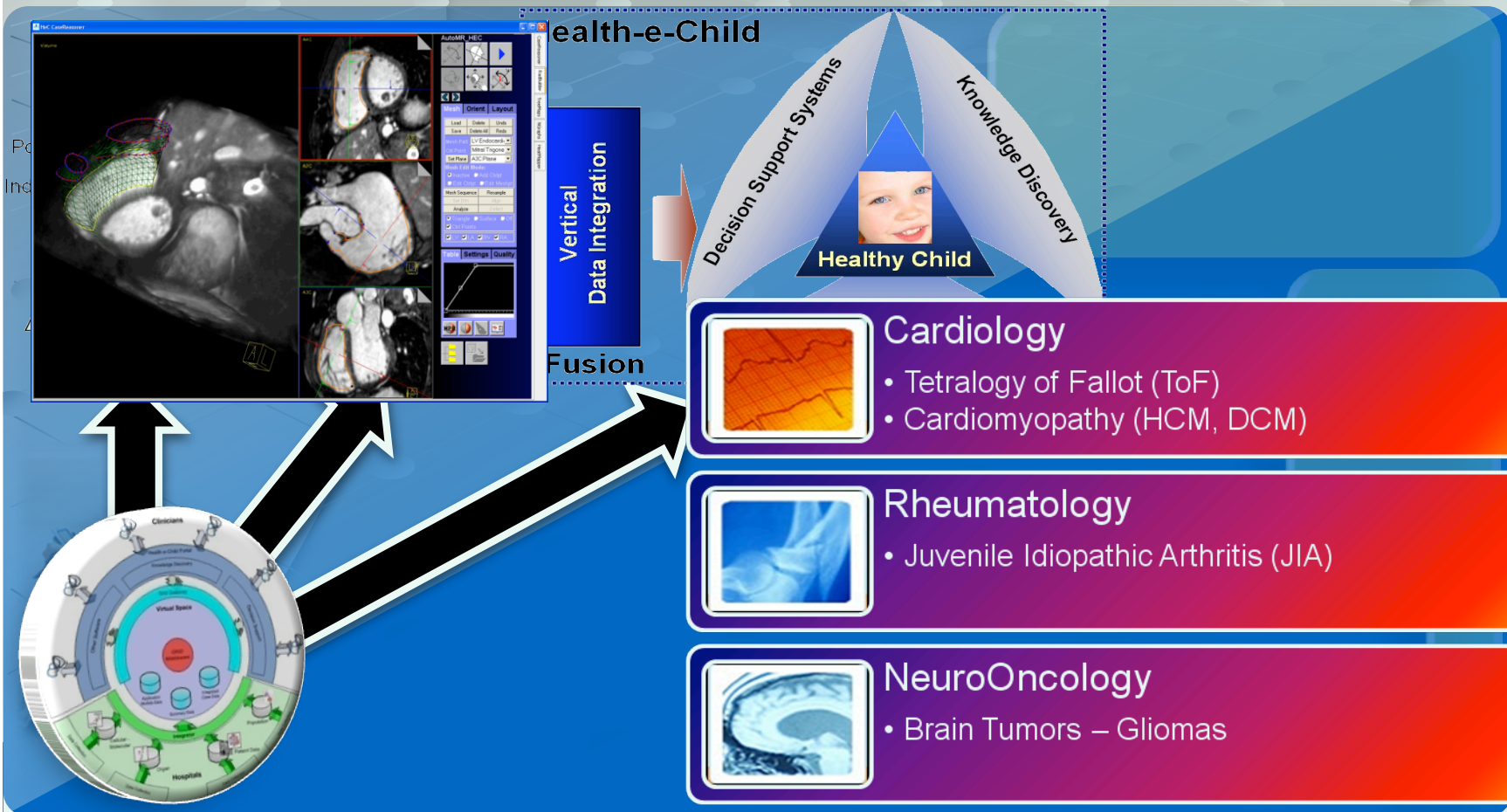


Pharmacology

Healthgrid



Health-e-Child, An Healthgrid for Paediatrics



Infrastructure



Clinical Site

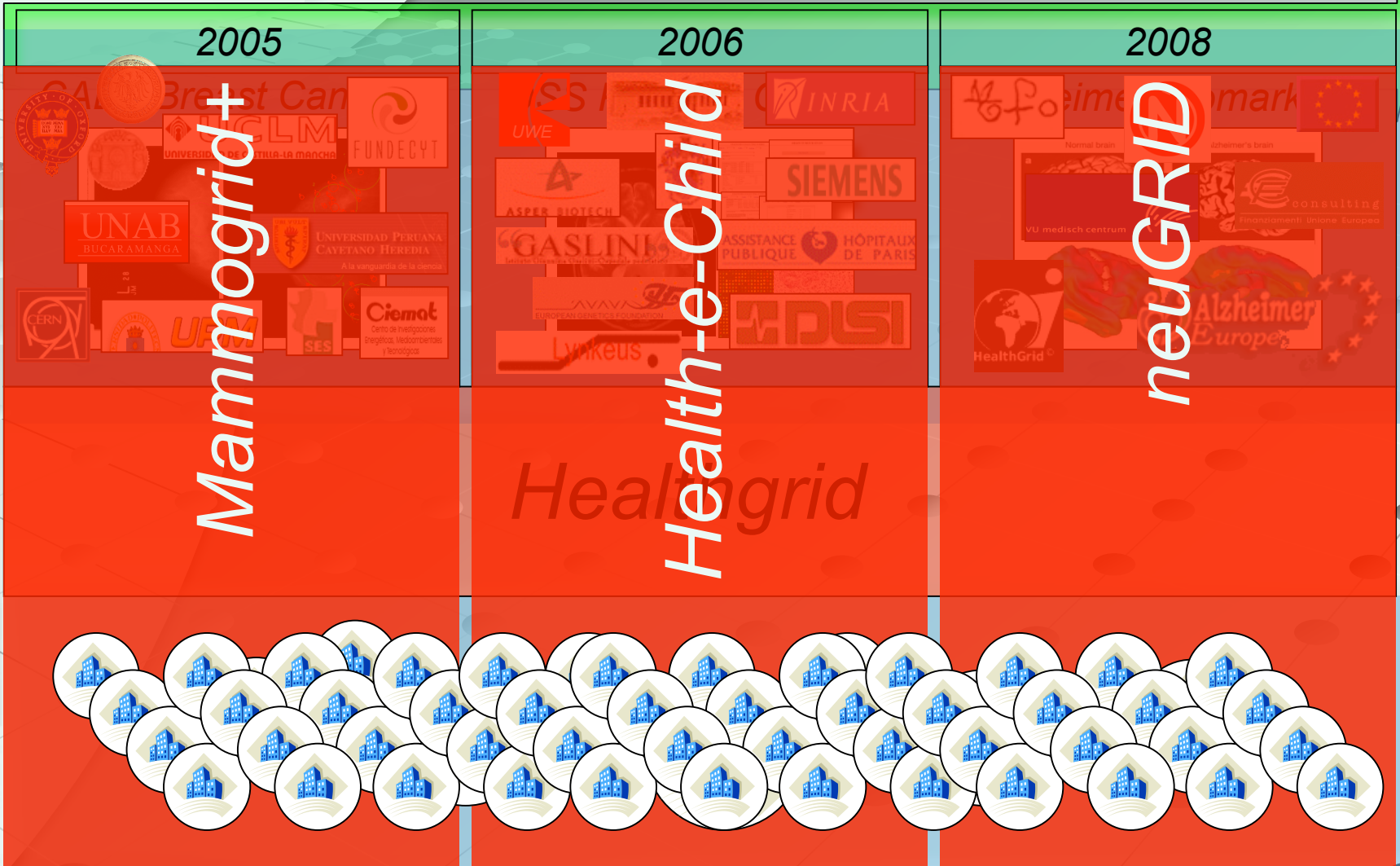
R&D Site



Marketing Plan (1)



Healthgrid





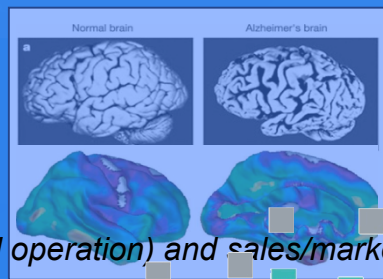
A Network of **Certified Partners**

CADe Breast Cancer

DSS Paediat. Cancer

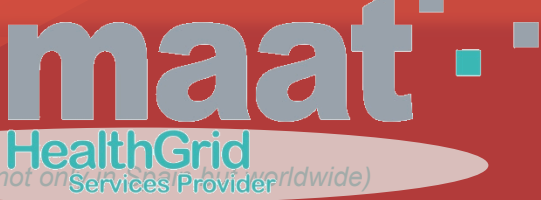
Alzheimer Biomarker

- Support in porting new applications to HGSP
- Online & Offline education services
- OnDemand infrastructure and data for application training
- Access to infrastructure facilities for promoting new products
- Direct access to market (via Clinical Institutions)
- Certified software
- Possibility of online consultancy
- Education care (clinical (presales, maintenance and support, and operation) and sales/marketing)



Infrastructure

- Teaming up with Telco Operators (i.e. Telefonica)
- Available platform and infrastructure
- Position in the market and its big size
- Opened infrastructure to Consultancy and Systems Integrator firms (i.e. Indra, Entel)



A Network of **Clinical Institutions**

- User Support
- Online & Offline Education Services (from HGSP and from Certified Partners)
- Access to a large network of excellence at minimal cost
- Access to state-of-the-art software from Certified Partners
- Provide data for enriching the infrastructure





Showstoppers in Healthgrids

Research

- Biomedical Research in Europe is quite fragmented,
- Lack of collaboration (sometimes motivated by politics and/or IP issues),
- ELSE concerns are not solved, and no concensus,
- No sustainability nor European Infrastructure,
- Lots of overlaping developments,

Technology

- SOA still not completely enforced,
- Gridification most of the time too intrusive to be beneficial,
- Lack of proper APIs, decrease usability,
- Few reuse of technologies,
- Lack of interoperability in infrastructures,
- Key functionality still missing,

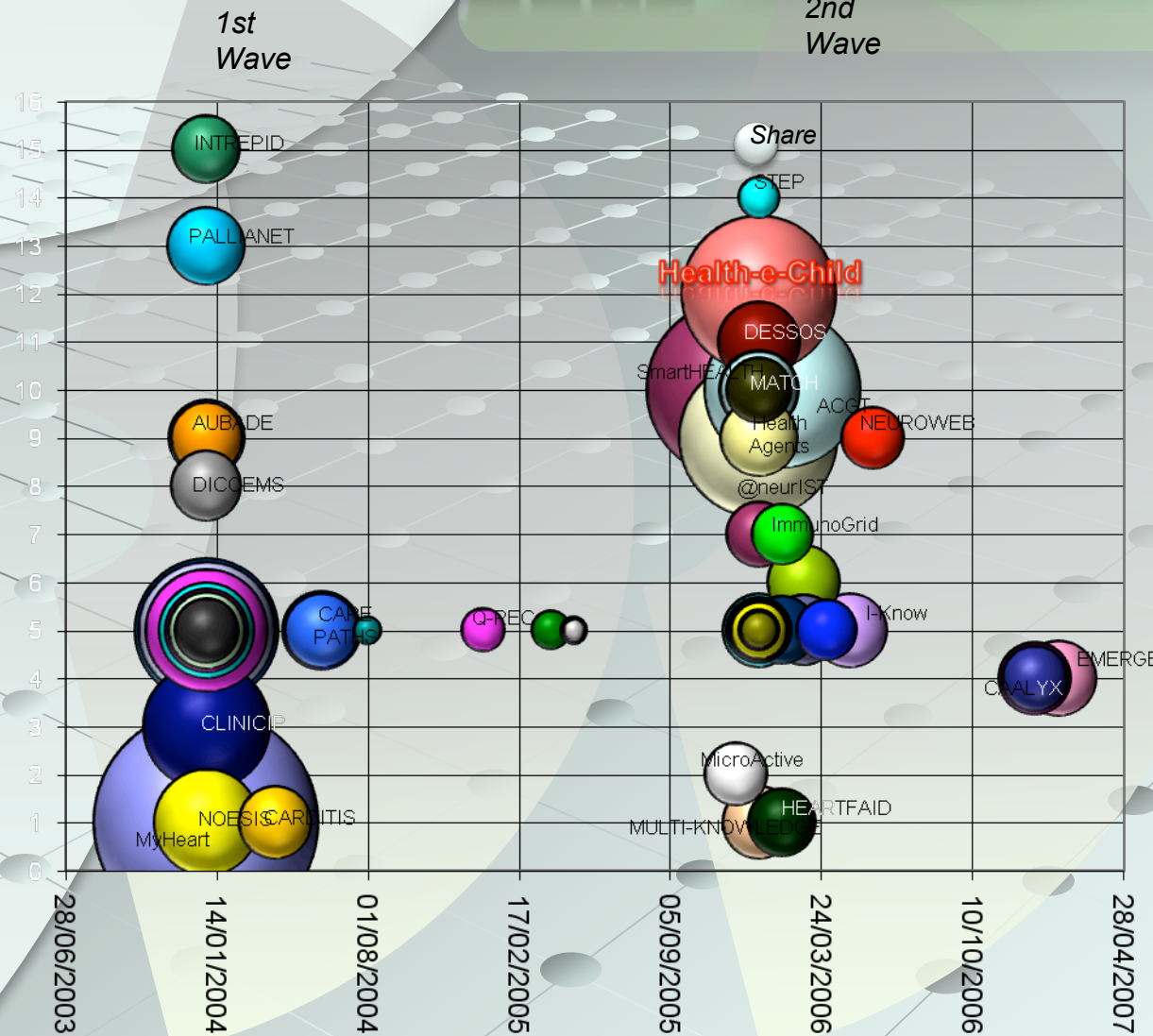
Business

- Research networks forbid business activity,
- Security of the whole thing is difficult to assess and certify,
- Not all Industries confident with Open Source Software



FP6-IST Survey

Projects Waves



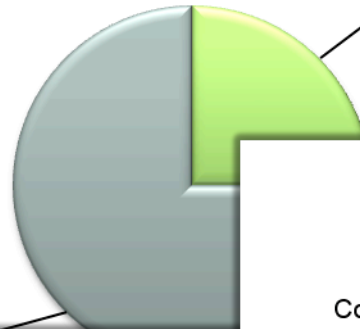
- MyHeart
- SmartheALTH
- @neurIST
- ACGT
- Health-e-Child
- PIPS
- BIOPATTERN
- CLINICIP
- COCOON
- NOESIS
- SemanticMining
- INFOBIOMED
- DESSOS
- SIMAP
- TACIT
- PALLANET
- ASSIST
- Doc@Hand
- HealthAgents
- ALLADIN
- EMERGE
- I-Know
- MULTI-KNOWLEDGE
- CARE-PATHS
- HEALTH PLUS
- K4CARE
- OLDES
- CARDITIS
- AUBADE
- OFSETH
- VIROLAB
- DICOEMS
- LHDL
- INTREPID
- HEARTFAID
- MATCH
- RIGHT
- EuResist
- CAALYX
- ARTEMIS
- SAPHIRE
- MicroActive
- NEUROWEB
- ImmunoGrid





Regular Technologies

Centralised Databasing
25%

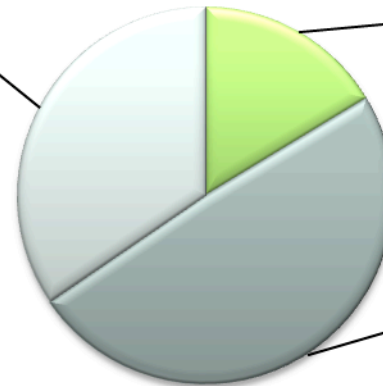


All Technologies

Grid Computing
35%

Centralised Databasing
16%

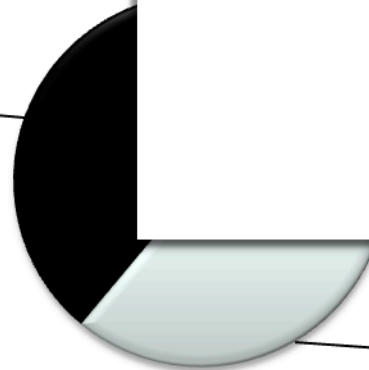
Decentralised Databasing
49%



Grid Technologies

NA
39%

Gridge / Globus
39%



Psychiatry
1%

Orthopaedic surgery
1%

Diagnostics
1%

Genetics
1%

Neurology
1%

Cardiology
10%

Oncology
12%

ILTH

@neurIST
7%

T

5%

PIPS
6%

7%



Conclusion (1)



Research

Industry



Conclusion (2)

- *Slow take-up despite high potential*
Requires raising awareness and convincing arguments
- *Grid technology is not straightforward to apply to healthcare*
 - *Similar requirements (when security/privacy taken aside)*
 - *But Grid initially developed by and for physicists*
- *Biomedical Research lacks of an (infra)structure to succeed in this adoption and to sustain*

***Evolution rather
than Revolution...***



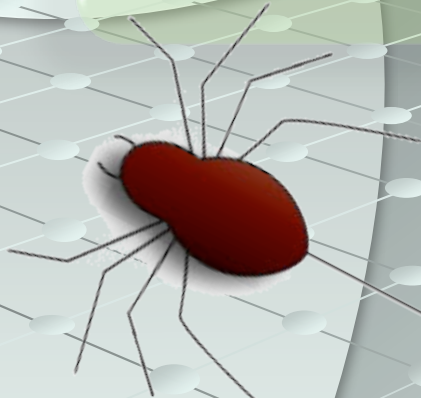
Thank you for your attention



Healthgrid Near Future

SPIDeR,

Super Peta-scale Infrastructure for Distributed e-Health and biomedical Research



Healthgrid