

Servicing healthcare and beyond with Grid technologies

Yannick Legré

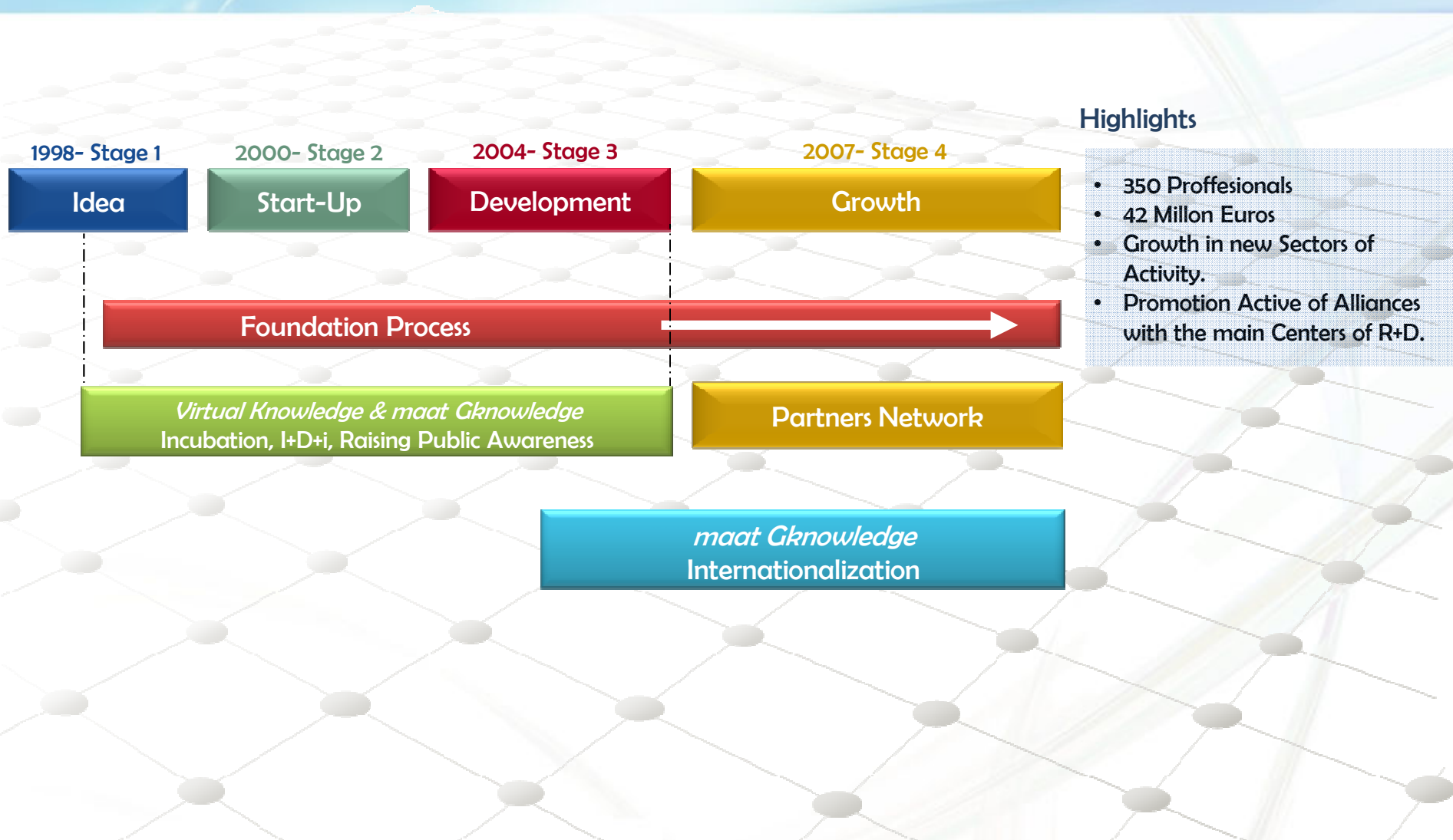
International Relationships Director

Gartner
maat Gknowledge

*Cool Vendor in Platform and
Integration Middleware, 2008*

maat **G**

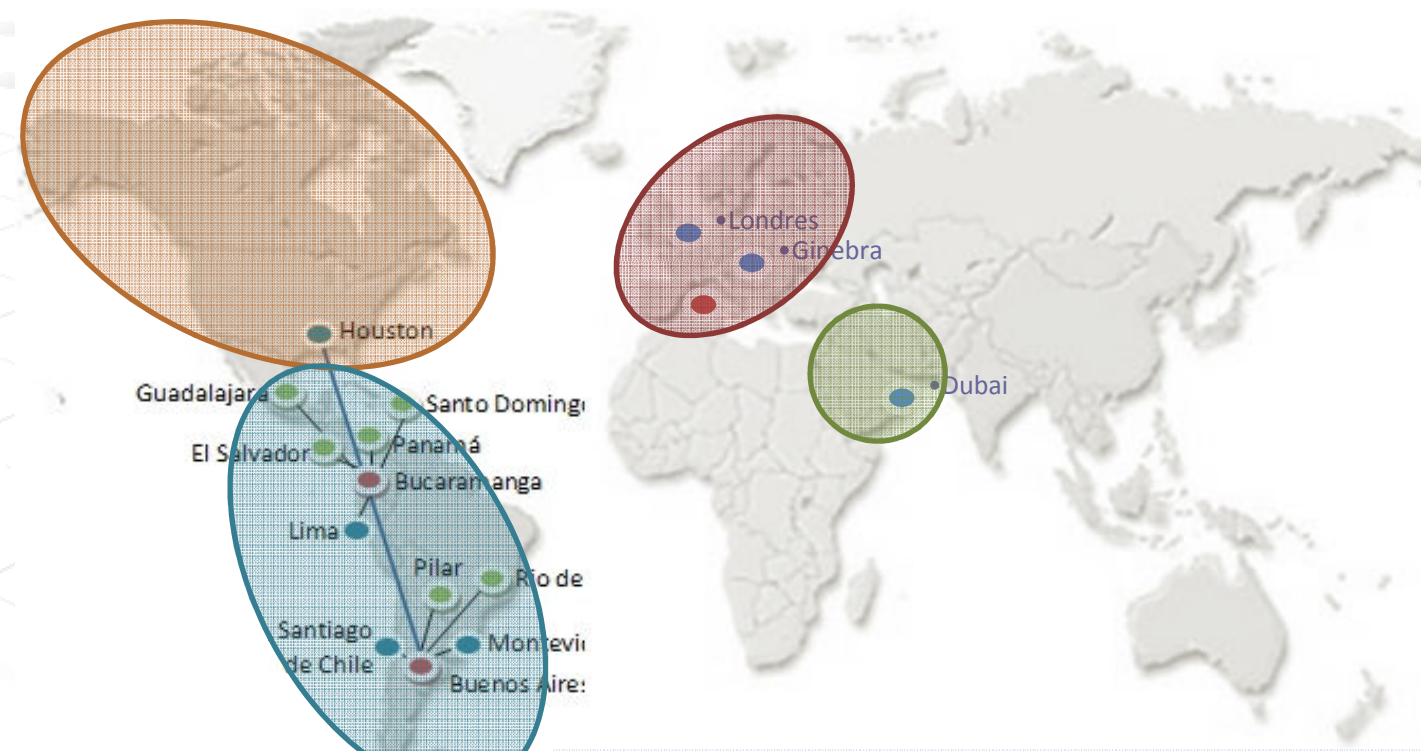
Development Stages



Internationalization - Geographic Expansion

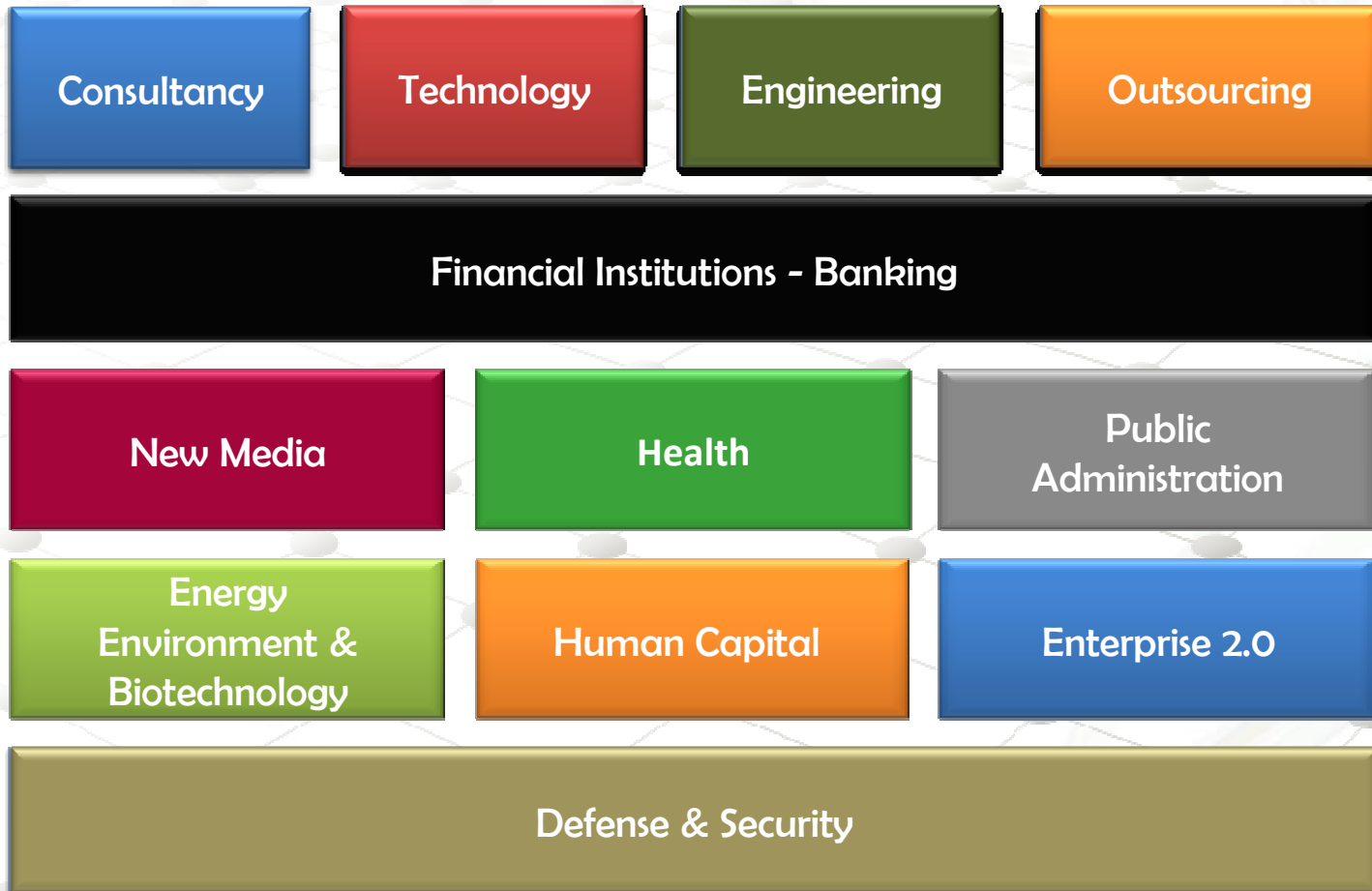
A Grid of Companies...

- Europe.
- North America.
- Latin America.
- Middle East.

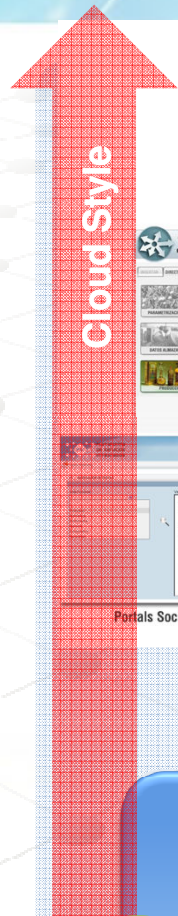


	Production Center	Production Centers not only construct assets to global level but they give support to the regional projects.
	Comercial Office	
	Comercial Representation	

Market Sectors



Infrastructure and Middleware Value Proposal



COREBANKING

WEBPORTALS

ERPs-Workflows
trazabilidad
trazabil

BUSINESS SOLUTIONS

maat

ma
Gknowledge

Portals Social Network

e-LEARNING

CORPORATE SOLUTIONS

Grid Technology

Applications

USER DATA

Data Integration

Grid Integration

SaaS

DATA SOURCES

DATA DOCUMENTS

Developer its applications

House Unit

Notes

Phone

Time

Over

200

ite

ire

Studies (process)

Default

Explorer

G-Serialize

Explorer

G-Serialize



Infrastructure and Middleware Value Proposal

GaaS

Web2.0
G knowleer

Portal Technology

SOA
G gateway

Software to Access Cloud Platform
Integration Middleware

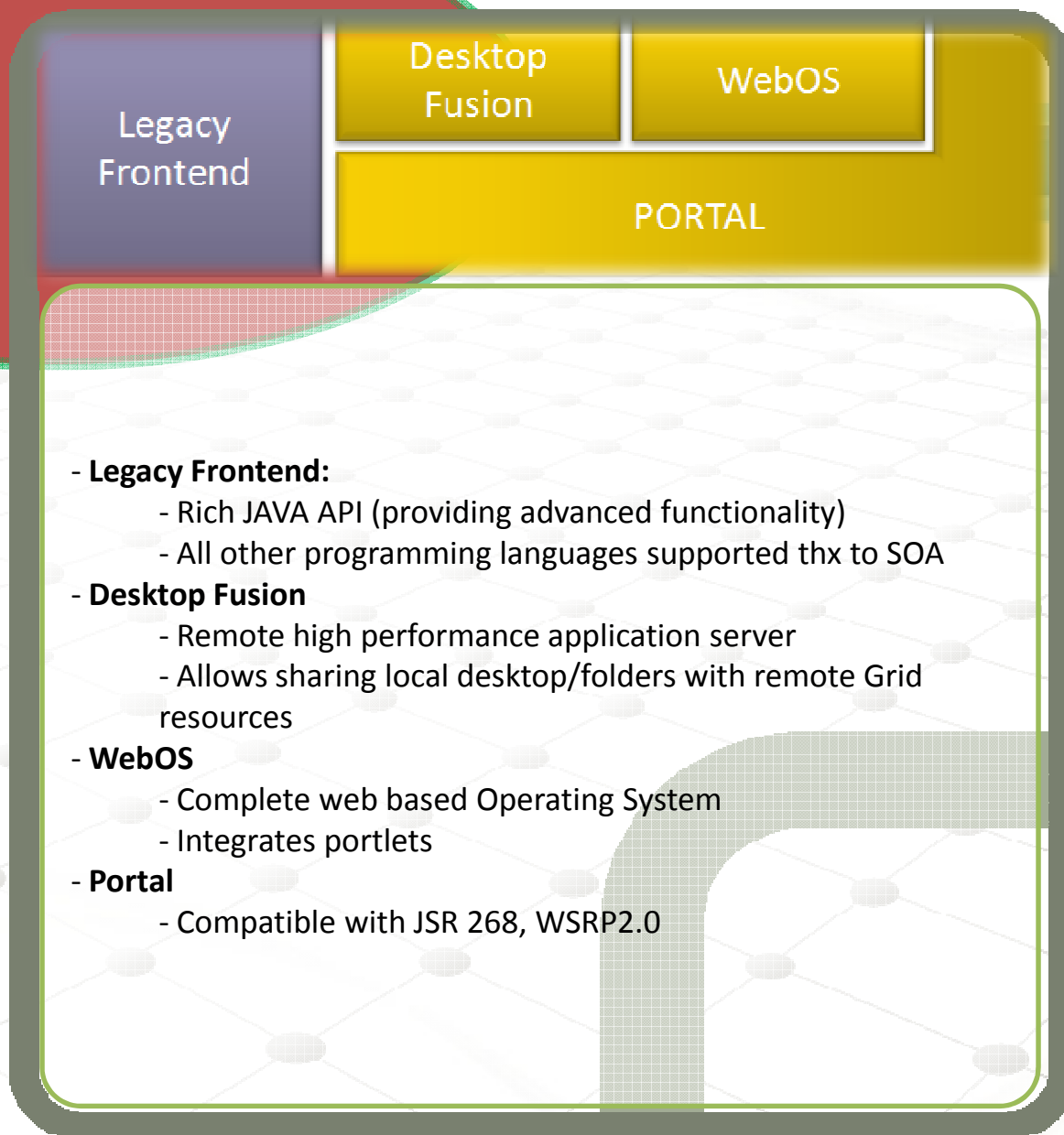
EAS
G core +
G middleware +
G developer

Elements to make Virtual Organizations
through Cloud Platform
Grid in a Box
Grid in a Pen

•Solution Overview



• Frontend Container



• Backend Container

- Backend Abstraction:

- Support for transactions
- Fined grained security until rows in database
- Support most relational databases
- Support XML-Berkley database

- Backend:

- Graph oriented database « G »
- Seamless integration of heterogeneous data

- Infrastructure:

- All resources abstracted using XEN
- Fast deployment of physical resources

EGEE gLite

Globus

SGE

Unicore

Zorilla

Koala

GridSAM

Privacy

and Accounting



SOA Enablers

- Security:

- 1FA, 2FA and 3FA supported,
- Services are provided with a security context

SOA Governance

PARTNER'S BUSINESS

Backends Abstraction

Security &

Monitoring, Logging

- SOA Governance:

- UDDI based
- WSDL2.0 compliant
- Fined grained security until service functions (RBAC)
- Publication, Discovery and Composition services
- BPEL as input, WSDL as output



• Reusability

Highly Specialized
Interfaces

Common Purpose
Interfaces

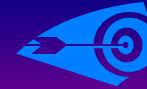
PARTNER'S BUSINESS

Generic to ALL domains

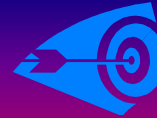


Health – Case Study

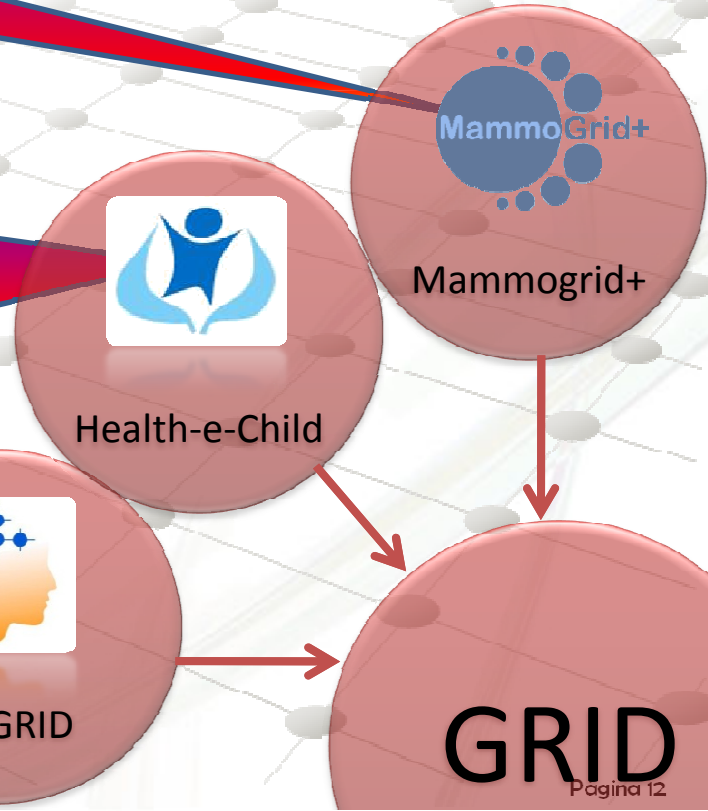
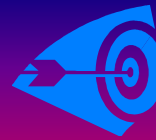
- Second Opinion
- Cancer Screening
- Education and Training
- Reference Database / Repository



- Decision Support
- Disease Modelling
- Knowledge Discovery
- Reference Database of Rare Conditions



- Imaging Markers Development
- Extension to Other Medical Areas
- Reference Database & Infrastructure



Decision

Health - Case Support &

Knowledge

Discovery

Complex Modelling & Simulation

Medical Image Processing

Digital Repository

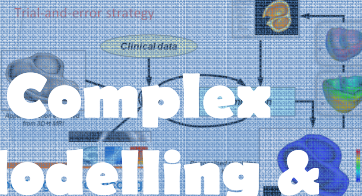
Achievements - Clinical Decision Support

- **CaseReasoner**
 - Case-based reasoning associating a cohort of diagnosed patients
 - Similarity search on complex, multimodal data
 - Integrated in and leveraging the grid infrastructure
- **Decision Support based on (semi-)automatic feature extraction from MRI (for right ventricle, wrist, and brain)**



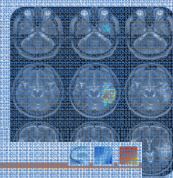
*Courtesy of SIEMENS

Achievements - Disease Modelling Cardiology



*Courtesy of IMRGA

Achievements - Disease Modelling Cardiology

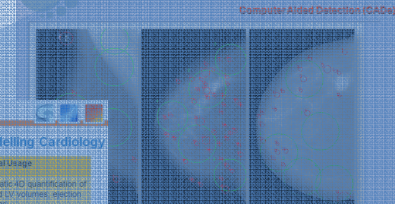


*Courtesy of IMRGA

Achievements - Disease Modelling Cardiology

Model	Clinical Usage
Anatomical RV and LV Models	Automatic 4D quantification of RV and LV volumes, ejection fractions
Anatomical 4D Model of Pulmonary Trunk	Morphology and dynamic deformation suitability for pulmonary valve replacement
Disease-specific Models	Deeper Understanding
Personalized electromechanical models for therapy of Patient	PV diagrams, 3D strain and stress
Soft tissue intervention and force	Simulation of the effects of pulmonary valve replacement
Search of Models	Clinical Decision Support
Case-Based Reasoning	

Achievements

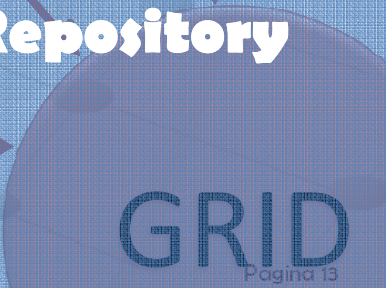
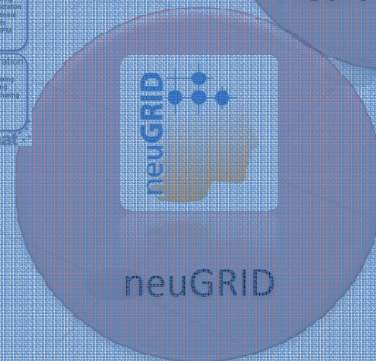


*Courtesy of UNIPA & UNISS

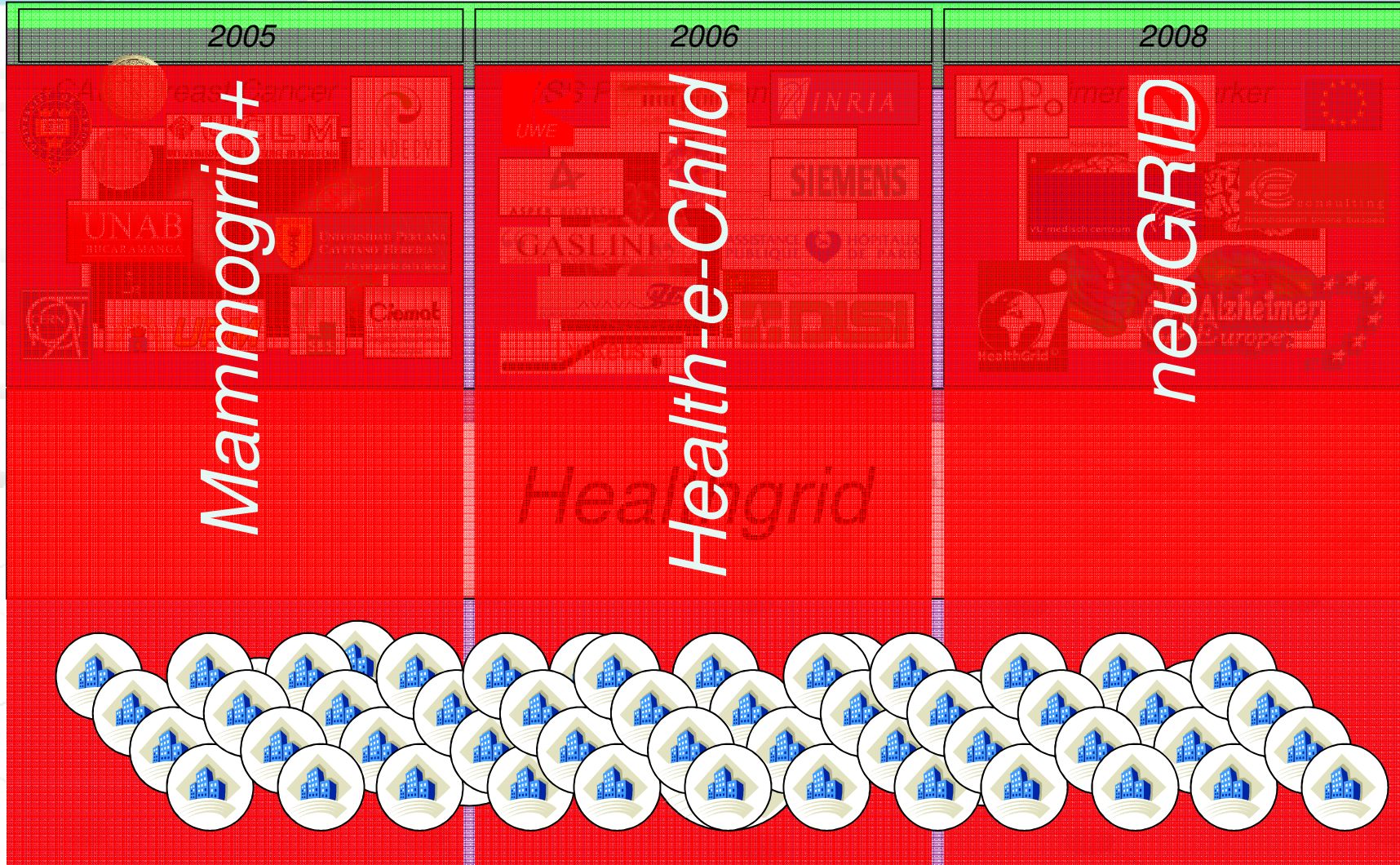
Achievements - Biomedical Knowledge Discovery

- **Improved biological understanding Gene expression study in neuro oncology**
 - Additional 27 tissue samples processed with local funding
 - Assessment of statistical significance
- **Integrated new applications**
 - AMON
 - Reasoning using inference in graphs
 - Temporal Reasoning
 - Treemap Browser

Achievements - Initial Prototype



Health – Case Study

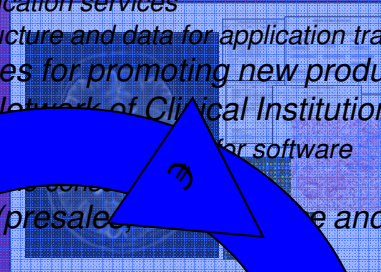
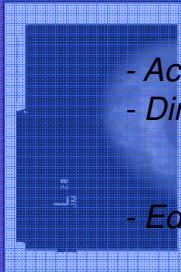




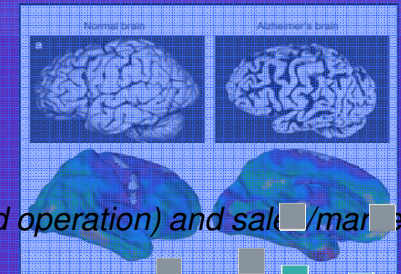
Health – Case Study

A Network of **Certified Partners**

- **CADE Breast Cancer**
 - Online & Offline education services
 - OnDemand infrastructure and data for application training
- **Prof. S. Cancer**
 - Access to infrastructure facilities for promoting new products
 - Direct access to market (i.e. Network of Clinical Institutions)
 - Certification for software
 - Possibility of doing research and development
 - Education career financial (presale, maintenance and support, and operation) and sale/marketing

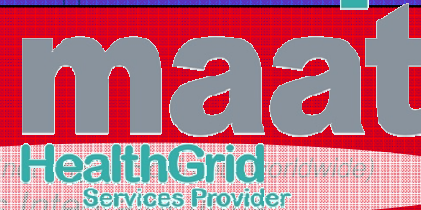


• Alzheimer Biomarker



Infrastructure

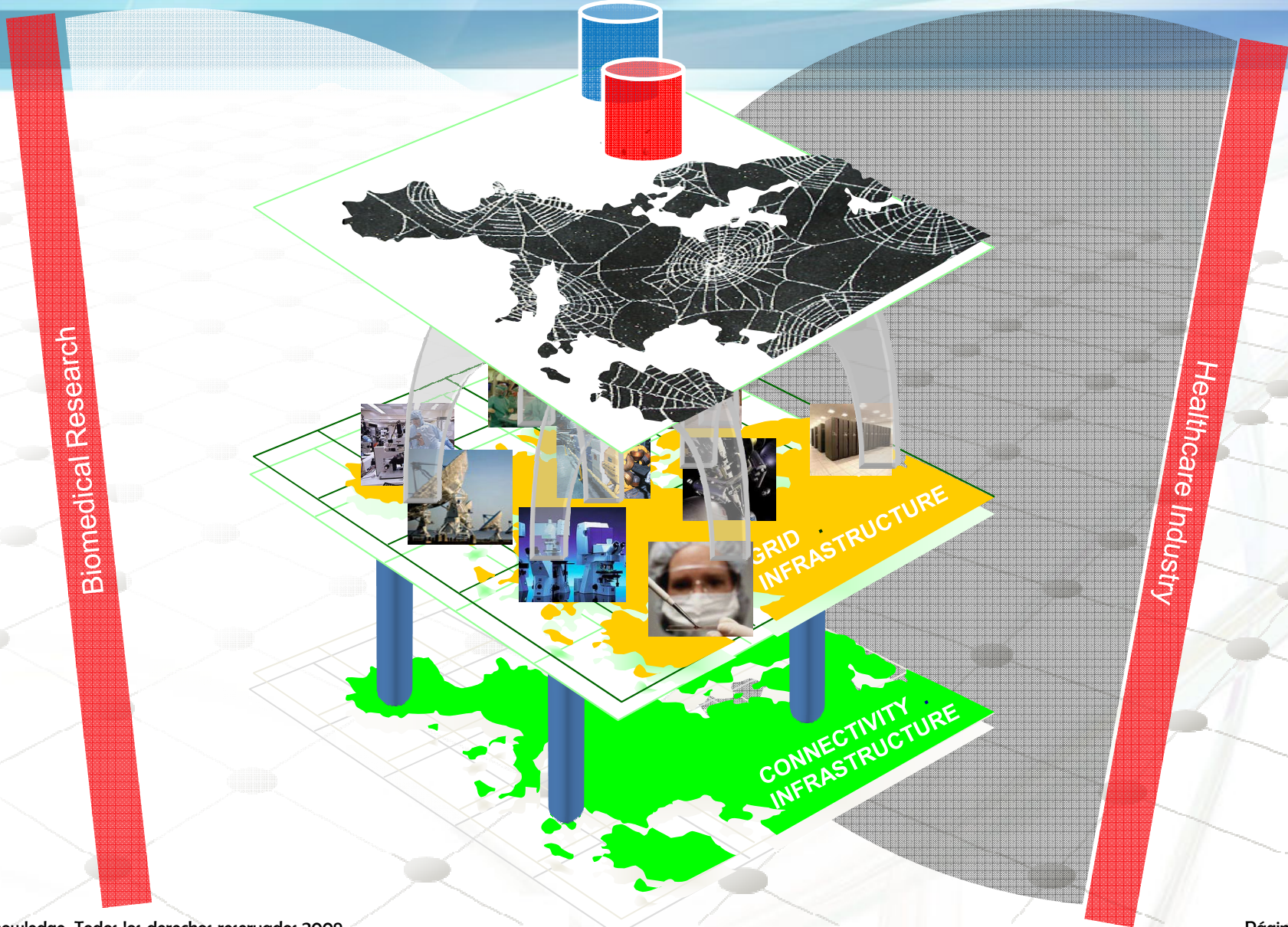
- Teaming-up with Telco Operators
- Available platform and infrastructure position in the market and its big
- Opened infrastructure to Consultancy and



A Network of **Clinical Institutions**

- User Support
- Online & Offline Education Service (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



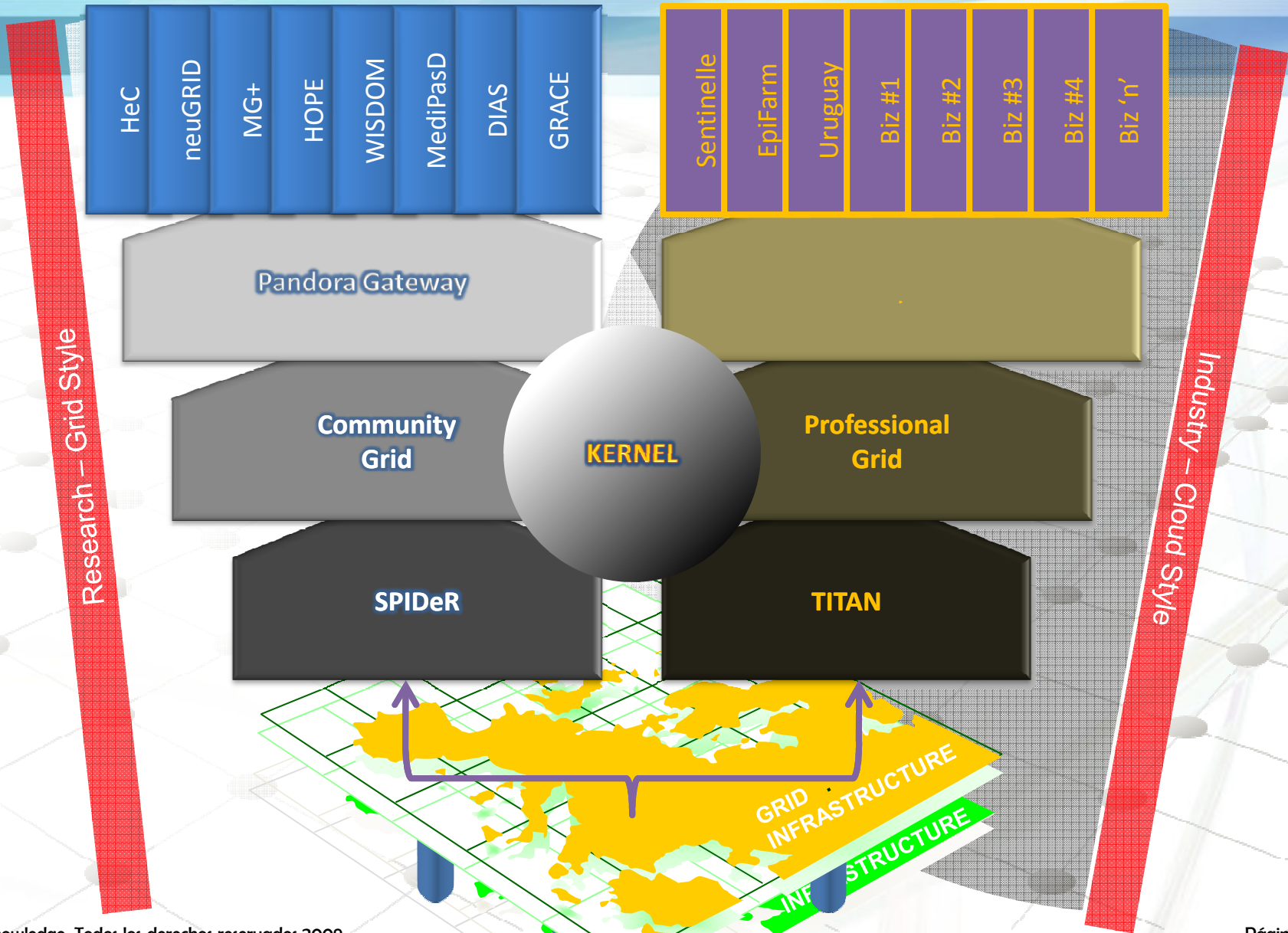


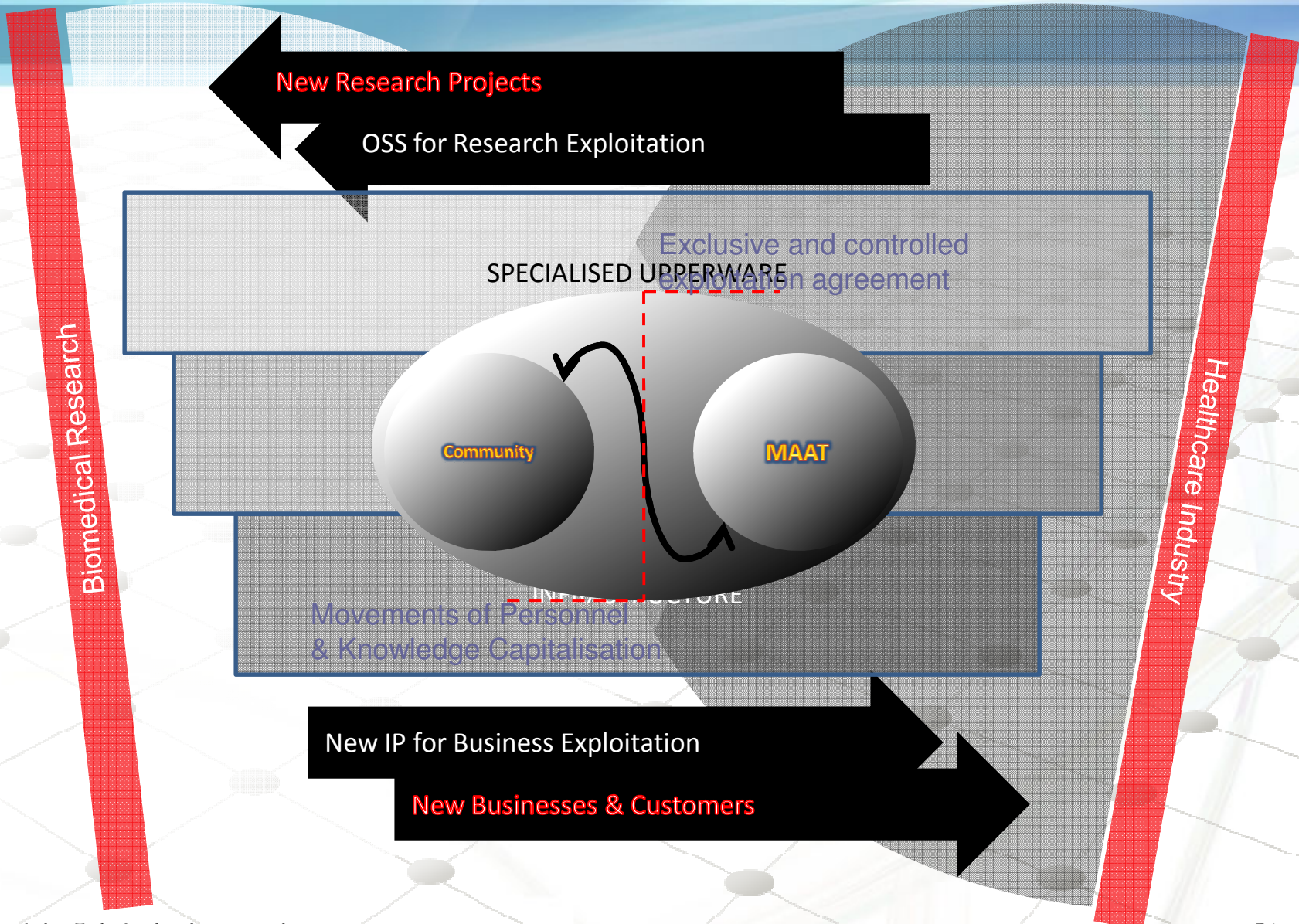
Biomedical Research

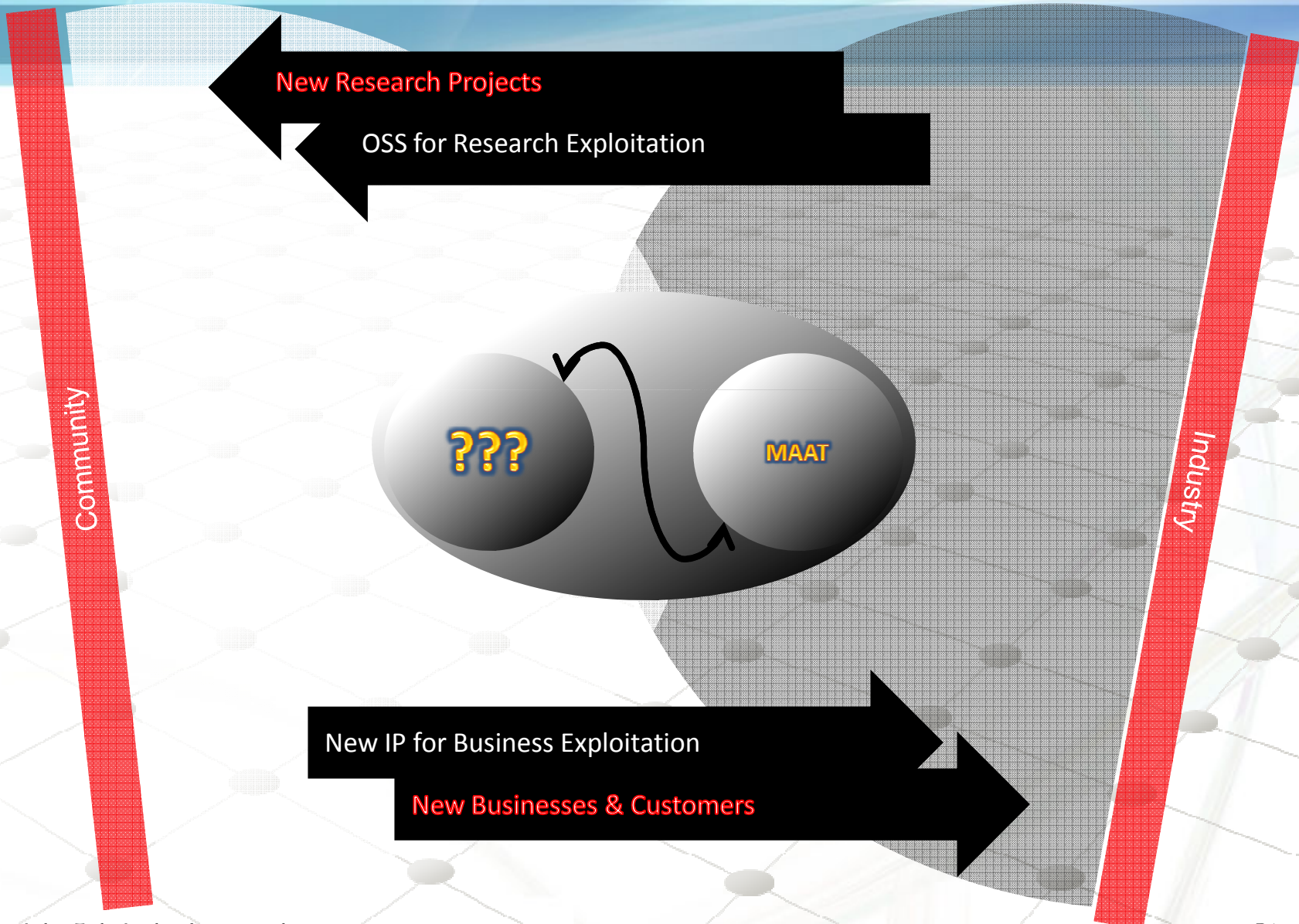
Healthcare Industry

GRID
INFRASTRUCTURE

CONNECTIVITY
INFRASTRUCTURE







Community

Industry

???

MAAT

New Research Projects

OSS for Research Exploitation

New IP for Business Exploitation

New Businesses & Customers

- España: 902 007 232 (desde fuera de España: +34 925 090 900)
- Francia: +33 450 439 602
- Colombia: +57 7 657 4441
- Argentina: +54 11 4312 9246

Europe's Information Society
Thematic Portal

European Commission > Information Society > ICT 2008

2008 **ict** event
"ITS" TO THE FUTURE
invention - innovation - impact
25 - 27 NOV
LYON

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ICT 2008: Europe's biggest research event for information and communication technologies

Health-e-Child wins best exhibit at ICT 2008

(27/11/2008) [Health-e-Child](#) has won the ICT 2008 Exhibit Grand Prize worth €10,000. This project uses grid 'supercomputing' technology to connect and inform paediatrics healthcare professionals. The [HoloVizio](#) exhibit was the runner-up and [u 2010](#) came in third place. Congratulations to all the winners! See [detailed results of the competition](#). See also [all ICT 2008 exhibitions](#).

ICT 2008 closing day: 4,500 delegates at Lyon Event

(27/11/2008) Some 4,500 delegates registered for ICT 2008, making Lyon one of the best-attended ICT Events ever. The event presented Europe's priorities for ICT research, development and funding. A host of leading personalities from the world of ICT looked at how Europe can lead the ICT agenda for the next decade. View [videos of plenary sessions](#) and [photo gallery of opening sessions](#).

THANK YOU

maat Gknowledge - R'n D Collaborations

At National Level:

- Universidad Castilla-La Mancha,
- Universidad Jaume I de Castellón,
- Universidad Politécnica de Valencia,
- CIEMAT,
- CETA-CIEMAT,...

At International Level :

- CERN (European Organization for Nuclear Research)
- EGEE (Enabling Grids For E Science)
- Universidad de Bucaramanga (Colombia)
- Assistance Hôpitaux Publique de Paris
- European Genetics Foundation
- University College London
- University of the West England
- University of Athens
- Università degli Studi di Genova
- INRIA. The National Institute for Research in Computer Science and Control. France.
- ASPER Biotech
- Fondazione Gerolamo Gaslini
- Istituto Giannina Gaslini
- Ospedale Pediatrico Bambino Gesù



G Market References Overview (1). Banking & Insurance Clients



G Market References Overview (2). eHealth Clients



Hospitals/Clinical Centers

- *Assistance Hôpitaux Publique de Paris, NECKER Enfants Malades, France*
- *Great Ormond Street Hospital for Sick Children, UK*
- *Istituto Giannina Gaslini, Italy*
- *Ospedale Pediatrico Bambino Gesù, Italy*
- *VU Medisch Centrum, Holland*
- *Provincia Lombardo Veneta Ordine Ospedaliero di San Giovanni di Dio Fatebenefratelli, Italy*
- *Karolinska Institute, Sweden*
- *Johns Hopkins University Hospital (JHU), USA*
- *Ospedale Italiano Umberto 1°*
- *Hospital Italiano de Buenos Aires*
- *CAAMEPA*
- *Instituto Nacional de Cirugía Cardíaca de Uruguay*

Industries

- *SIEMENS AG, Germany*
- *SIEMENS Corporate Research, USA*
- *Prodema Informatics, Zurich, Switzerland*
- *CCC Medical Devices*

G Market References Overview (3).
Government Clients (More than 700 City Halls)



SECRETARÍA DE ESTADO DE ECONOMÍA
PLANIFICACIÓN Y DESARROLLO
<http://www.economia.gob.do>



Castilla-La Mancha



Extremadura

•Asociación de Municipios de México



Secretarías, Interventores y
Tesoreros de Administración Local



Excmo. Ayuntamiento
de Talavera de la Reina



Ayuntamiento
de Roa



•Ayuntamiento de
Alcazar de San Juan



•Ayuntamiento de
Illescas



ARCANDÍA
DE LEAGUE



AYUNTAMIENTO
DE GUADALAJARA



MIGUELTURRA
ayuntamiento

G Market References Overview (4).
Other Clients



National Awards



maat Gknowledge receives the Prize Innovation of the Chamber of Commerce of Toledo, in its edition of 2008 recognizing the profits and evolution of the company.



maat Gknowledge has been awarded with Prize CEOE-CECAM - Confederation of Industrialists of Castilla-La Mancha like better regional company of 2008 - corresponding to the province of Toledo, giving itself the award on the part of President Barreda and the President of CEOE-CECAM, Jesus Barcenas the 27 of November in Toledo.



maat Gknowledge has been awarded with the Prize to the Innovating Project by the Network of Spectral Monitoring beginning by the Meeting of Communities of Castilla-La Mancha through Abertis and maat Gknowledge.



maat Gknowledge has been awarded with the Prize to the developing Quality of Software by the School Computer science Engineer officer of Castilla-La Mancha grants the Prize.

International Awards



maat Gknowledge has been selected by Gartner, world leader in investigation and consulting related to Information Technology, as "Cool Vendor" in the "Platform and Integration Middleware" category.



Project ORUS designed and managed by maat Gknowledge has received the certification of the program of management of the innovation CYTED IBEROEKA to the Innovation, international Cooperation, Transference of knowledge and technology in the financial sector



The Health-e-Child project that is managed by the European partnership in which maat Gknowledge participates actively obtains the prize for best poster and demonstration at the HealthGrid'08 Conference celebrated in Chicago



The prestigious scientific magazine iSGTW, that already published a news article on the development of the European project Health-e-Child, again makes reference to the same in its publication of May of 2008.



Premio a la mejor demo del EGEE User Forum (Enabling Grids for E-ScienceE), Ginebra :El EGEE User Forum, celebrado durante febrero de 2008, ha seleccionado como mejor demostración, la desarrollada por maat Gknowledge titulada "The Health-e-Child Gateway and Case Reasoner, a Concrete Implementation and Use-case of a gLite-based Healthgrid for European Paediatrics"



maat Gknowledge has also been presented with the Gold Medal at the International Exhibition of Inventions, celebrated April 18 through 22 in 2007. This prize came as recognition of the HealthGrid Platform developed by the technology company and supposes an important step forward in the European medical/health sector.



Health-e-Child



The Health-e-Child Platform is placed between five better technologies GRID. 2007: The international committee of evaluation of the EGEE07 it described to the Health-e-Child project, in which maat Gknowledge is the unique participant Spanish company, like one as the best ones enters the fifty presented/displayed this Conference that took place in Budapest in October of 2007.



The European Commission, in celebrated ICT 2008 in Lyons, has granted the prize to the European project Health-e-Child in which maat G participates like unique Spanish company in which it is the project on investigation in Technologies of the Information and the most important Communication of Europe in this sector of and-Health.