

Success and Sustainability

EGEE Collaborating Projects' Achievements in 2009 And Future Plans

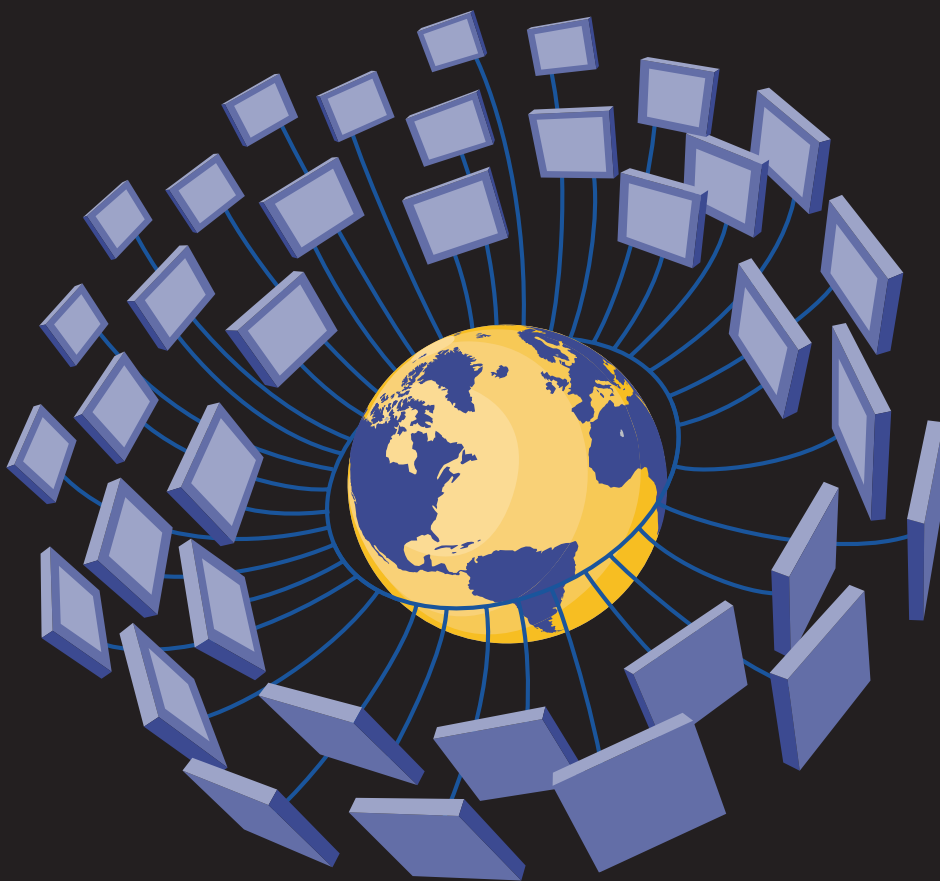






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Introduction

Across Europe and in each region of the globe, the Enabling Grids for E-science (EGEE) project supports international collaborations engaged in pioneering research. Since its launch in 2004, EGEE has managed the largest production computing grid in the European Research Area, with many additional sites linking from the Americas, Asia and Africa. Working through internet connections, grid computing makes it possible for users to share computing power and storage. The EGEE infrastructure, with its secure computing, data storage and transfer tools and services, has become a crucial network of support for many research communities. EGEE counts over 17,000 registered users in 50 countries, in several scientific disciplines, including high energy- and astrophysics, computational chemistry, life sciences, and atmospheric research.

EGEE collaborates with dozens of international projects as part of its goal to support best practices in modern research. 'Success and Sustainability: EGEE Collaborating Projects' Achievements in 2009 and Future Plans' is the final in an annual series of publications providing insight into the achievements of these projects over the past twelve months and their future goals.

EGEE will come to a close at the end of April 2010, but the crucial grid computing infrastructure it has established will continue. The same tools and services will continue to be available to users of the infrastructure, under the management of a new organisation: the European Grid Initiative (EGI).

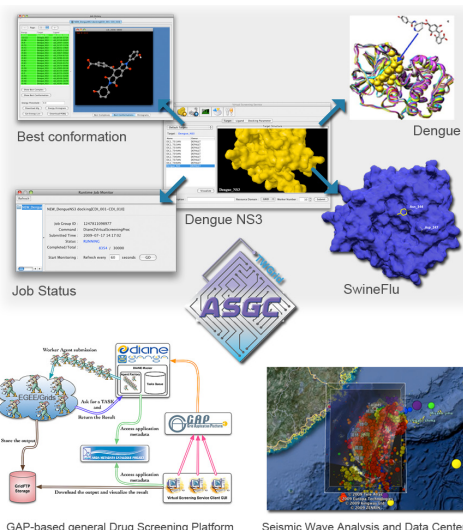


ASGC

<http://www.twgrid.org>
Start date: January 2005

Academia Sinica Grid Computing (ASGC), one of the leading high performance computing and communication centres in Taiwan provides advanced and progressive grid computing services to scientists from various domains in Asia Pacific countries.

ASGC became one of the 11 WLCG Tier-1 centres in 2005 (the only Tier-1 in Asia), providing services, coordination and support to high energy physicists worldwide. Based on this, ASGC later joined EGEE, developing and deploying gLite services, tools and e-Science applications. In the third phase of EGEE, ASGC is involved in several networking and service activities, with significant focus on coordination of Asia Pacific effort in user support (application porting and direct user support), EGEE cluster support (earth science, grid observatory, astronomy and astrophysics), and grid deployment (management, operations and support). One of its many notable contributions is the GStat monitoring tool and Storage Resource Manager (SRM). The SRM was developed to enable the gLite storage resource broker to become an archival system of the infrastructure, supporting flexible lifetime policy for files and interfaces, Virtual Organisation-based resource policy and security control.



ASGC e-Science Applications - Life Science and Disaster Mitigation

ASGC is collaborating with the EUAsiaGrid project in deploying high-throughput e-Science services in the region. In 2009, both were engaged in the avian flu data challenge and the deployment of a drug discovery platform as a result of the dengue fever drug discovery work. Disaster mitigation is another field both projects are involved in. Some examples of applications in this area include earthquake research and seismic wave propagation analysis, and carbon flux analysis for environmental monitoring. To support these activities, ASGC has developed the 'Grid Application Platform', a framework for developing and deploying e-Science services on the Grid.

Acting as the Asia Federation coordinator and Asia Pacific Regional Operation Centre, ASGC aims to pave the way towards an Asian-wide production e-Science infrastructure, in synergy with the other European grid initiatives. The number of gLite-based sites and users is growing in Asia, and ASGC will continue to provide sustainable operation and application support to maximise the value of e-Science in the region.

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BalticGrid-II

<http://www.balticgrid.eu>

Start date: May 2008

End date: April 2010

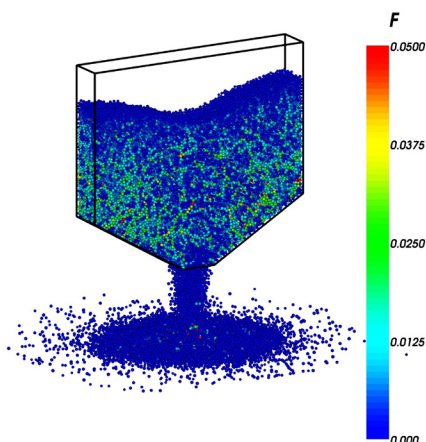


The main objective of the BalticGrid-II project is to increase the impact, adoption and reach of e-Science infrastructures to scientists in the Baltic States and Belarus, as well as to further improve the support of services and users of grid infrastructures. As with its predecessor BalticGrid, BalticGrid-II has strong links with EGEE and its technologies, with gLite as the underlying middleware of the project's infrastructure. Both projects have signed a Memorandum of Understanding with the objective of ensuring provision of regional operational grid support to the resource centres in the Baltic States and Belarus.

The BalticGrid-II infrastructure is in production and is being used significantly by the local scientific community. It consists of 26 clusters in five countries (of which 18 are on the EGEE production infrastructure), with more than 3.5k CPU cores, 230 TB of storage space, and has provided 3.85M computational hours of service.

The main application areas within BalticGrid-II are: high energy physics, materials science and quantum chemistry, framework for engineering modeling tasks, bioinformatics and biomedical imaging, experimental astrophysical thermonuclear fusion, linguistics as well as operational modelling of the Baltic Sea ecosystem. The BalticGrid-II infrastructure supports and helps scientists from the region to foster the use of modern computation and data storage systems, enabling them to gain knowledge and experience to work in the European research area.

BalticGrid-II also aims to ensure reliable network connectivity in Estonia, Latvia, Lithuania and Belarus, as well as to ensure optimal network performance for large file transfers and interactive traffic associated with grids.



Engineering modelling using DEMMAT_PAR software developed by Vilnius Gediminas Technical University

During the past year, a focused effort in involving industry was made, resulting in the creation of the BalticGrid Innovation Lab, which aims to educate early stage start-ups in the use of BalticGrid-II resources, mainly through a cloud interface – the BalticCloud. BalticCloud is a cloud infrastructure based on open-source solutions that is available for research and academia. At this early stage, initial deployments are done in Estonia, Lithuania and Belarus. A hands-on cloud computing course, using the BalticCloud infrastructure, was recently held in Estonia. There are plans to make this course part of the standard curricula for countries in the region who are interested.

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BEinGRID (Business Experiments in GRID) is successfully conducting real-world experiments targeting industry and research organisations to provide, use and validate grid technologies to meet business challenges. The EC-funded BEinGRID project is running 25 targeted Business Experiments (BEs) designed to implement and deploy grid solutions across major European business sectors (including the medical, financial, logistics, manufacturing, retail, tourism and textile sectors). Each one of the 25 BEs is a real grid application focusing on specific business processes addressing current customer needs.

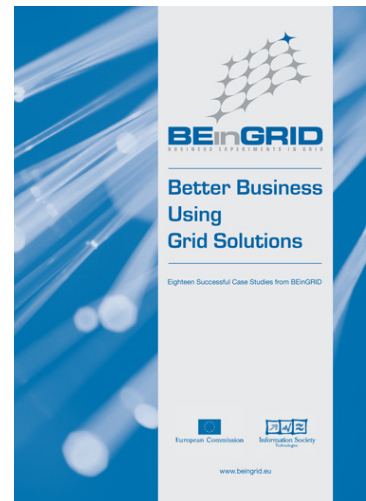
Complementing this work, Gridipedia (<http://www.gridipedia.eu>) provides businesses with a repository of grid software, service components and solutions designed to meet common business requirements as well as best practices to support European businesses with the take-up of grid and related technologies and services.

This past year, in addition to the seven BEs conducted as part of the second wave of the BEinGRID project, two demonstrations were developed to provide end users with real business scenarios enabling them to identify the role that grid technology can play for them. In one such example, the TravelCRMGrid demonstration explains how GridSystems developed a platform for producing business intelligence reports for travel agency groups using grid technology. In another pilot experiment, RadiotherapyGrid helps hospitals plan the best possible radiotherapy treatment for patients facing cancer. Grid technology is used to process the treatment data quickly and securely.

Through its involvement and collaboration with the EGEE Business Task Force (BTF), BEinGRID is making technical contributions and uses the considerable expertise built up in grid computing within EGEE. In 2009 these collaborations have resulted in two BEs being developed based on EGEE technologies with support from the EGEE BTF. BEinGRID has always had an active role in past EGEE events. At the EGEE'09 conference, the project will team up with the EGEE Business Forum for a one-day business track to showcase achievements from a business and technology transfer perspective and define the next steps in moving towards new frontiers in the arena of grids and clouds.

Both the BEinGRID and EGEE missions are moving towards the same objective; to establish effective routes to foster the adoption of grid technologies across Europe and to stimulate research into innovative business models using grid technologies.

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BEinGRID Case Studies

BELIEF-II

<http://www.beliefproject.org>

Start date: April 2008

End date: March 2010



BELIEF's strategic objective is to coordinate efficient and effective communication of results, networking and knowledge flow between Europe's e-Infrastructure projects and their users, promoting their development and exploitation worldwide. Through its innovative online tools and stimulating publications, the project boosts a better understanding of what e-Infrastructures are and the benefits of adopting them worldwide.

BELIEF aims to achieve these objectives with a series of initiatives. Two e-Infrastructure Concertation meetings were organised in 2008 – Barcelona (June) and Lyon (November) – which enhanced the communication amongst e-Infrastructure projects. The results of these events are documented in reports available on the project's portal and on the BELIEF digital library. The third and last of this series will be in Brussels (12-14th October 2009).



Courtesy of Franck Boston (Fotolia)

In 2009, BELIEF organised the fifth Brainstorming workshop in Athens (April 2009), and two International Symposia – India (January) and Brazil (July). These events supported local policy dialogue and resulted in a better understanding of the local needs with respect to e-Infrastructure adoption and sustainability. Through these networking events and the project's online tools, the BELIEF community now counts over 750 key e-Infrastructures players from different regions.

To ensure an extensive and worldwide dissemination of European e-Infrastructure results and achievements, BELIEF publishes the Zero-In magazine. Launched in January 2009, Zero-In showcases the research and development activities in the world of e-Infrastructures and is a forum for news, comment and analysis on this exciting new research paradigm. The first two editions, available at <http://www.beliefproject.org/media-corner/e-magazine>, were distributed to national and international policy makers as well as key projects and individuals using or developing e-Infrastructures across the world.

BELIEF is co-producing an international e-Infrastructures Guide in collaboration with EGEE and GÉANT2, giving an overview of EC-funded e-Infrastructure projects with an international outreach and provides a snapshot of projects with global impact to be distributed at policy-making level.

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D4Science focuses on the deployment, consolidation and expansion of a production quality grid e-Infrastructure that addresses the needs of the environmental monitoring and the fisheries and aquaculture resources management scientific communities.

The D4Science e-Infrastructure aims to accelerate multidisciplinary research by overcoming crucial barriers, such as heterogeneity, sustainability and scalability. In order to achieve its objectives, it exploits the EGEE e-Infrastructure resources, and consolidates and expands its gCube system built on top of the EGEE gLite middleware.

gCube uses emerging standards and technologies in the fields of grid computing, service-oriented architecture, information management and retrieval, and offers:

- ➔ support and operation of an e-Infrastructure that enables the registration and management of Virtual Organisations (VO)
- ➔ hosting and sharing of large and diverse data collections
- ➔ Virtual Research Environments (VREs) to grant secure access to a subset of the VO resources for a limited time-frame
- ➔ several advanced discovery tools, such as simple, geospatial and federated searches, and other domain-specific tools.



Marine species distribution map

During the past year, the D4Science project focused in particular on serving the application needs of its target scientific communities. Thousands of marine species distribution maps were generated using the EGEE infrastructure. These maps, based on an algorithm which captures species ecological envelopes, are now available in VREs serving the biodiversity community in estimating/predicting species geographic distribution. It is expected that the improved ability to generate these maps and their quality will have a strong impact on the work of numerous scientific communities. For example, it will facilitate modelling of climate change in marine areas and the evaluation of its impact on aquatic populations' distribution and abundance, and on aquatic ecosystems.

The future EGI is particularly relevant to clarify and facilitate the sustainability plans for the D4Science infrastructure and system. By liaising with EGI, D4Science will find the necessary support to move from the current project-based organisation, using its own partners and EGEE resources, to a truly institutionalised entity responsible for the coordination and maintenance of a data infrastructure ecosystem.

DORII

<http://www.dorii.eu>

Start date: February 2008

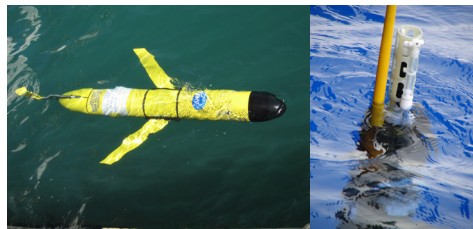
End date: July 2010



The DORII (Deployment of Remote Instrumentation Infrastructure) project aims to deploy an e-Infrastructure for new scientific communities that use experimental equipment and instrumentation not yet integrated or only partially integrated with European e-Infrastructures. DORII supports a wide range of scientific areas: the earthquake community (with various sensor networks), the environmental science community and experimental science community, with synchrotron and free electron lasers.

During the last year, DORII's main achievements include the following:

- ➔ the Remote Instrumentation infrastructure is operational and in production
- ➔ pilot applications have been deployed on the infrastructure:
 - ▶ environmental community applications (use of oceanographic instruments, digital cameras)
 - ▶ experimental science community application (use of SAXS Imaging Detector)
 - ▶ earthquake community application
 - ▶ network-centric seismic simulations application (use of load cell, displacement transducer, hydraulic ramp)
 - ▶ earthquake early-warning system application (use of seismic sensors network)
- ➔ the corresponding instruments are successfully integrated into the infrastructure, with the following instruments available for users
 - ▶ APEX FLOAT, glider, SAXS Imaging Detector, load cell, displacement transducer, hydraulic ramp, seismic sensors network, digital cameras.



DORII experimental equipment and instrumentation

The second DORII middleware package was also released. This package includes all key components of the project architecture: Instrument Element (IE); Virtual Control Room (VCR), g-Eclipse framework, Workflow Manager Framework, support for MPI applications (MPI-Start) and interactivity (i2gLogin), as well as the Java common library that acts as the client side to the underlying middleware. DORII has so far received positive usability feedback from its users.

The IE, VCR, i2glogin and g-Eclipse are part of the EGEE RESPECT program of grid software and services that work well in concert with the EGEE gLite middleware. The DORII middleware can be installed on top of gLite on which it relies for all standard grid components. For example, the current version of the IE, a component which controls the instrument, is a set of WS-I compliant web services virtualising the concept of instrument and sensor. The IE is a grid component that works jointly with gLite services. The IE, integrated into the EGEE e-Infrastructure, extends gLite's functionality to the interactive control and monitoring of remote instruments. This allows users to interact with instruments and profit from a more interactive and parallel oriented grid infrastructure.

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EGEE is one of the largest grids in the world with over 125k CPUs in Europe and abroad. However, some applications and users just need more computing capacity for their scientific work. Desktop grids can provide this capacity, as they alone in Europe, already have a capacity of around 500k CPUs. But how, as an EGEE user can you use this compute resource? The EDGeS (Enabling Desktop Grids for e-Science) project provides the solution. During the past year, EDGeS has installed an infrastructure with bridges between EGEE (and other gLite based service grids), and desktop grids based on BOINC or XtremWeb-HEP. The bridges allow computational jobs from service grids to be processed by desktop grids and vice versa. These bridges permit EGEE users to submit large numbers of jobs to participating desktop grids. They also facilitate the use of service grid infrastructures for desktop grid applications.

EDGeS has also built an application repository of validated applications that can run on the combined grid infrastructure. The repository includes the following applications:

- ➔ Video Stream Analysis in a Grid Environment (from Correlation Systems)

- ➔ Digital Alias-free Signal Processing; Protein Molecule Simulation using Autodock; 3-D Video Rendering using Blender; Profiling Hospitals in the UK based on Patient Readmission Statistics (University of Westminster)

- ➔ E-Marketplace Model Integrated with Logistics; Anti-cancer Drug Design (Magyar Tudományos Akadémia Számítástechnikai és Automatizálási Kutatóintézet)

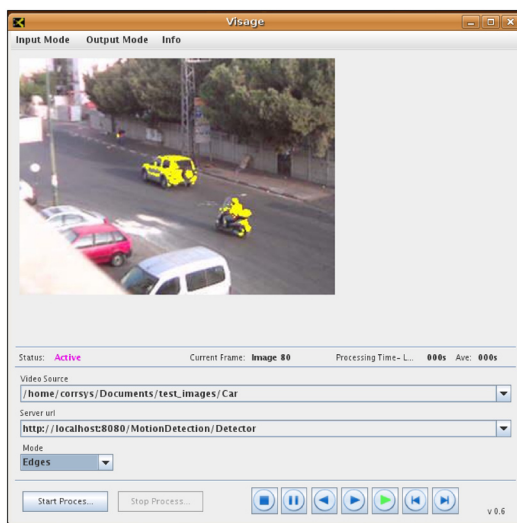
- ➔ Cellular Automata based Laser Dynamics (University of Seville)

- ➔ Signal and Image Processing using GT4 Tray (Forschungszentrum Karlsruhe)

- ➔ Analysis of Genotype Data (Atos Origin)

- ➔ Distributed Audio Retrieval using TRIANA (Cardiff University)

- ➔ Fusion Plasma Application (BIFI).



ViSAGE - Video Stream Analysis in a Grid Environment

EDGeS also provides a focal point for desktop grids for e-Science in Europe. There are regular user and industry meetings and training courses. The EDGeS website is a main entry point into the desktop grid world, with plenty of information including how you can run your application on the combined grid or on how you can connect to this ever-growing federation of grids.

EELA-2

<http://www.eu-eela.eu>

Start date: April 2008

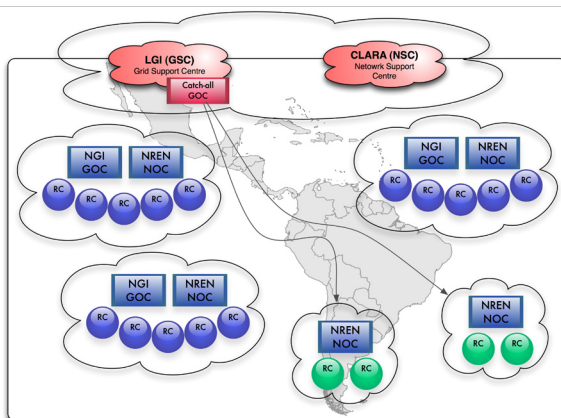
End date: March 2010



EELA-2 aims to build a high capacity, production-quality, scalable grid facility providing services needed by several European-Latin American scientific collaborations and to ensure the sustainability of the e-Infrastructure beyond the end of the project.

In the last twelve months EELA-2 has commissioned its production-level e-Infrastructure which is made, as of print date, of 22 sites (eleven in Europe and eleven in Latin America) for a total of 3k CPU cores and 1 PB of storage (<http://goc.grid.sinica.edu.tw/gstat/eela/>). More than 50 applications (<http://applications.eu-eela.eu>) from nine scientific domains are currently supported with more than half 'gridified' and/or are being used in production. In addition, the gLite-OurGrid interoperability work, in collaboration with the EDGeS project, is near completion. Other ongoing joint research activities include the porting of both the gLite User Interface and Worker Node components to Microsoft Windows platform and the development of new middleware services extending the capabilities of the production infrastructure and providing functionalities that facilitate its use by the project's user-base (<https://forge.eu-eela.eu>).

Intense EELA-2 dissemination activities have resulted in two new countries (Panama and Uruguay) and more than 30 new members who have officially joined the consortium. Presently, the project now counts a respectable 78 institutions, of which 62 are from Latin America. EELA-2 members are currently organised in 13 Joint Research Units (JRUs), with nine from Latin America. These Latin American JRUs have been created 'from scratch' in the context of the project.

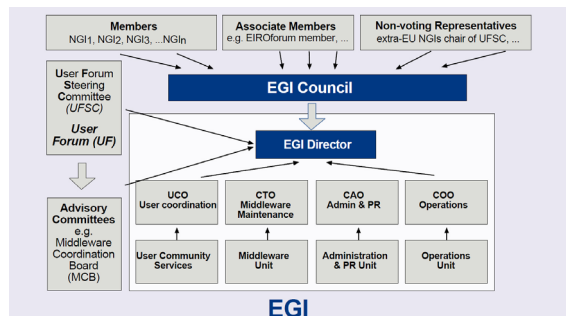


Multi-layer architecture of the Latin American Infrastructure

At the end of 2008, EELA-2 had developed its model (<http://documents.eu-eela.org/record/1119/files/>) for a dependable Latin American Infrastructure (LGI). The three-layer architecture of LGI is depicted in the diagram on the right. As shown, a strong correlation/synergy between NRENs (National Research and Education Network) and NGIs (National Grid Initiative) is suggested and LGI is proposed to be part of CLARA (Cooperação Latino-Americana de Redes Avançadas). The EELA-2 model for LGI is under discussion with CLARA and the Latin American NRENs' representatives, and it is expected to evolve in a real transition plan, with an outlook of forming the LGI by 2010 at the earliest, hopefully before the end of the EELA-2.

The main objective of the European Grid Initiative (EGI) is to establish a sustainable grid service for the European scientific community, through the creation of a long-term, pan-European grid infrastructure. The EC-funded EGI Design Study (EGI_DS) project has been charged with defining and implementing the EGI organisation and activities, and is coordinating the efforts of the participating countries as they move towards the EGI model.

Numerous important achievements have been made during the design study phase, in particular during the last twelve months. One of the most significant steps was the endorsement of the detailed blueprint of the EGI organisation by the decision-making body representing NGIs of 42 countries – on 20th January 2009. The EGI Blueprint defines the full organisation's operational and financial framework. It presents a vision of the transition towards the new EGI model, and includes practical information on the relevant requirements regarding the implementation, operation, user interaction with and management of the corresponding infrastructure, as well as the preliminary budget outline.



EGI.eu Management Structure

A second important step was taken on 2nd March 2009 when Amsterdam was chosen to host the headquarters of the EGI organisation (EGI.eu), the coordinating body for the EGI. Following this selection, the first EGI Council meeting was hosted in Amsterdam on 9th July 2009 with representatives from the NGIs in EU member and associated states that have signed the EGI Memorandum of Understanding (MoU), agreeing to share the vision described in the EGI Blueprint and accepting the necessity to contribute with membership fees to fund EGI.eu. The EGI Council also has other members such as European institutions represented in the EIROFORUM, and non-voting observers from NGIs that, while eligible for membership, have not signed the MoU. The first EGI Council also invited additional observers from non-European national grid infrastructures. These recent achievements show the commitment from national actors to the implementation of a sustainable pan-European grid infrastructure, and to the EGI model as the future for grid infrastructure in Europe. This strong commitment now makes possible the real establishment of a new international research infrastructure in Europe, where a large number of countries will put together and operate the world's largest grid computing facility.

EGI_DS and EGEE are collaborating closely to ensure a smooth transition of the knowledge and expertise acquired over EGEE's lifetime and to maintain the production grid infrastructure and associated services users now routinely rely on.

e-NMR

<http://www.e-nmr.eu>

Start date: November 2007

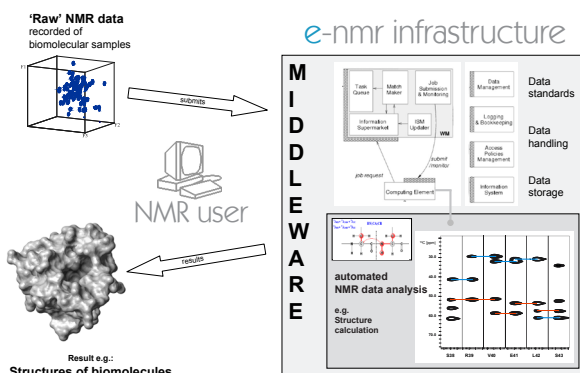
End date: October 2010



The main objective of the e-NMR project is to optimise and extend the use of the Nuclear Magnetic Resonance (NMR) research infrastructures of EU-NMR through the implementation of an e-Infrastructure in order to provide the European bio-NMR user community with a platform integrating and streamlining the computational approaches necessary for bio-NMR data analysis. The e-NMR infrastructure is a grid-based infrastructure and is fully compatible with EGEE.

The project aims to tackle the following objectives: i) establish a human collaboration network between the bio-NMR and the e-Infrastructure scientific communities, ii) assess the state-of-the-art computational aspects of bio-NMR, and iii) implement and make available cutting edge computational methods. A broad range of networking activities will focus on standardisation, dissemination and outreach, training, and hands-on workshops. The development and enforcement of operational and organisational schemes and policies will also be addressed.

During the first year of the project, the service activities mainly involved the deployment of the e-NMR grid infrastructure. Tools were made available for remote usage, while the networking and joint research activities created a reference for the sharing of data and NMR applications, not only amongst the project members but also with software users and developers outside the present partnership. Use-cases and test data sets were assembled for the deployed applications.

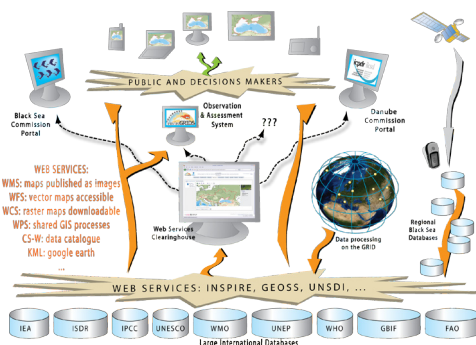


The e-NMR infrastructure

e-NMR is also working with its partners for their grid sites to be affiliated with their corresponding National Grid Initiatives (NGIs) and/or be part of the EGEE production Grid. Italian e-NMR sites now have links with the Italian NGI and German and Dutch e-NMR sites are in the process of joining the EGEE infrastructure. During the second year, special attention will be paid to the sustainability of the e-NMR project, networking with EGEE and NGIs, which should also ensure the concerted transition to the future European infrastructure, the dissemination of results, security issues related to the use of certificates and to determine the actual demand for the enhancement of the gLite middleware.

enviroGRIDS addresses numerous environmental issues within the Black Sea catchment by bringing several emerging information technologies that are revolutionising the way we observe our planet. It aims to increase the ability of scientists to assemble such a system in the Black Sea catchment, the ability of decision-makers to use it, and the capacity of the general public to understand the important environmental, social and economic issues at stake.

To this end, enviroGRIDS will build a grid-enabled spatial data infrastructure that will become one of the integral systems in the Global Earth Observation System of Systems (GEOSS), compatible with the new European directive on Infrastructure for Spatial Information in the European Union (INSPIRE), as well as United Nations Spatial Data Infrastructure developments.



enviroGrid's vision of a shared observation system

The scientific aim of the project is to reinforce existing observation systems in the Black Sea Catchment in order to address several GEO Societal Benefit Areas within a changing climate framework. This system will incorporate a shared information system that operates within the boundary of scientific/technical partners, stakeholders and the public. It will contain an early warning system able to inform decision-makers and the public in advance about risks to human health, biodiversity and ecosystems integrity, agriculture production or energy supply caused by climatic, demographic and land cover changes on a 50-year time horizon.

Since April 2009, enviroGRIDS has been preparing:

- ➔ a gap analysis of existing regional observation systems to prepare recommendations for the improvement of networks for data acquisition in the region/country
- ➔ guidelines for a spatial data infrastructure to link, gather, store, manage and distribute key environmental data
- ➔ guidelines for real-time access sensors and satellite data
- ➔ a plan for the gridification of the SWAT hydrological model
- ➔ a strategy for a grid-enabled spatial data infrastructure for large calculations and datasets.

As EGEE will end during the lifetime of the project, enviroGRIDS is exploring alternative solutions in terms of access to grid infrastructure, for instance moving from EGEE to the future European infrastructure. There is an ongoing task in the project to establish an enviroGRIDS VO within different international grids and gain support in the National Grid Initiatives of participating partner countries.

ETICS 2

<http://www.eticsproject.eu>

Start date: March 2008

End date: February 2010



eTICS2
The Grid Quality Process

ETICS 2 (e-Infrastructure for Testing, Integration and Configuration of Software - Phase 2) has developed ETICS, an all-in-one solution supporting software professionals in building and testing their software, while at the same time verifying and certifying its quality. Among ETICS main features are its language-independence, its multi-platform support, its independence from any specific build or test tool, its quality certification model compliant with ISO standards and its built-in support for multi-node testing automation.

EGEE, as one of the main users of ETICS, has been an endless source of feedback for continuous refinement. ETICS is used as the foundation for the build, packaging and integration process of the gLite middleware. The EGEE networking support team also implemented the IPv6 compliance analysis of the gLite code and the distributed IPv6 experimental testbed with ETICS. ETICS' advanced testing features can also be used to support the distributed testing of gLite components. ETICS allows the full automation of the deployment of the distributed testing setup and of the execution of the distributed tests. It can therefore be considered an ideal solution for complex testing scenarios such as the one for the gLite middleware.

The ETICS user community now includes 35 projects using or evaluating its services including: EC-funded projects D4Science and EDGEs, UNICORE and the European Space Agency SLE Gateway.

In the future European grid, ETICS' distributed build, test and quality verification and certification system could become the underlying technical foundation on which different middleware implementations can be tested and verified, enforcing common industry-standard procedures and quality certification methods. ETICS as a test management system, using state-of-the-art dynamic virtualisation technologies, can support the distributed testing of grid middleware and applications in realistic environments offering a dynamic and efficient management of the testbeds, and of testing and certification tools. At the same time the ETICS quality model can be considered as a starting point to create a set of quality measures, including compliance to standards, for the certification of distributed software widely recognised and adopted within the grid community.



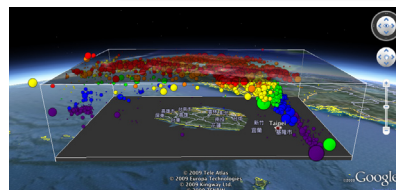
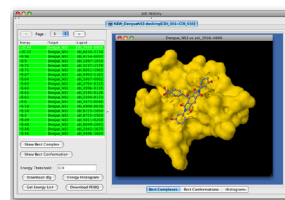
ETICS automates the execution of builds and tests in distributed, multi-language and multi-platform environments

For an intuitive view of ETICS and its main features, visit the 'ETICS Tutorials' webpage at <http://www.eticsproject.eu/etics/training/tutorials/index.htm>.

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The EUAsiaGrid project focuses on promoting EGEE gLite-based grid infrastructures in the Asia-Pacific region, to foster collaborative research across geographical and disciplinary boundaries. During its first year, the 15 project partners from twelve countries focused on wide dissemination activities, followed by specific training events to increase the awareness and uptake of grid technologies in general, and EGEE technologies in particular. More than 100 people were trained during four events, targeted at different audiences, from generic users to system administrators and application developers. Partners of EUAsiaGrid also gave 26 presentations at international conferences spreading the word about the project to attract new communities.

The EUAsiaGrid project provides direct support for five scientific areas: high energy physics, computational chemistry, social science, bioinformatics and biomedics, and disaster mitigation. In the latter field, for example, the project is investigating the use of grids for earthquake prediction, analysis and mitigation. Digital culture and heritage has been identified as a new scientific area of great interest to the Asia-Pacific partners and their countries, and work has started to define its requirements. A generic virtual organisation, with some 60 users has been created, with compute resources provided by partners. In the area of bioinformatics, the project was involved in the 2009 avian flu data challenge. Aside from contributing over 1.1k CPU-days, the data challenge demonstrated the stability of the project's grid infrastructure in participating in such a large scale production run. New data challenges are being planned, for example earthquake simulation and dengue fever drug discovery, to serve as references regarding the benefits of large scale international collaboration.



Some applications supported by EUAsiaGrid: earthquake mitigation, drug discovery for dengue fever and avian flu

EUAsiaGrid has initiated a survey of requirements amongst researchers in the Asia-Pacific region. The data collected to date confirms the potential for grid adoption in the region and provides concrete requirements for the support of applications, training and outreach. The outcome of the survey, together with information about the status and wider context of grids in the partner countries, will be the main input in developing a strategic roadmap to provide stakeholders with a sustainable model and cost estimate for a stable grid infrastructure in the Asia Pacific region.

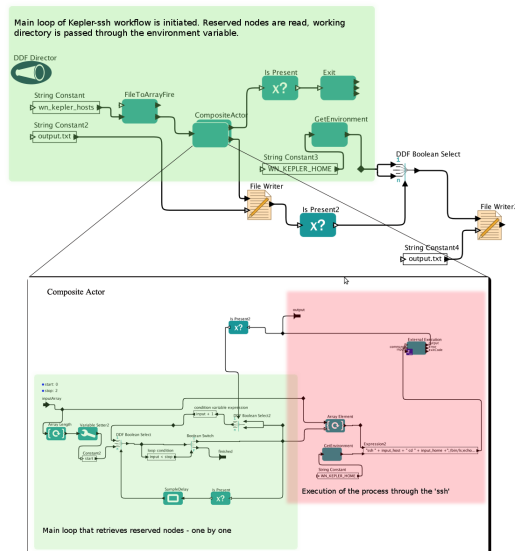
EUFORIA is bringing a new level of modelling capabilities to the European fusion community by providing transparent access to advanced grid and high performance computing (HPC) resources. The project is targeting different computing paradigms as needed (serial and parallel grid computing and HPC). Code support is therefore focused on adaptation, optimisation and integration of a set of critical applications. From the physics integration point of view, EUFORIA is promoting some novel aspects such as the dynamic coupling and integration of codes and applications running on a set of heterogeneous platforms into a single coupled framework through a workflow engine. The extension of the workflow orchestration system and middleware to transparently incorporate grid and HPC provide the necessary level of integration between the physics applications. This strongly enhances the integrated modelling capabilities of fusion plasmas and will at the same time provide new computing infrastructures and tools to the fusion community in general.

The main achievements in the last period are:

- ➔ the cross-platform e-Infrastructure is operational and in production
- ➔ the first middleware has been release and deployed (includes key components Kepler, RAS, Migrating Desktop, VineToolkit and i2g-login)
- ➔ the use case of the BIT1 application ported to grid and HPC environments has been successfully run within the workflow orchestrator - Kepler framework, showing usage of mixed resources
- ➔ a set of physics codes have been ported to grid and HPC infrastructures.

EUFORIA middleware can be deployed on top of the EGEE gLite middleware. With the EUFORIA implementation of an EGEE-compliant grid infrastructure deployed together with HPC resources, users can create advanced workflows and benefit from a more interactive and parallel oriented grid infrastructure.

The fusion community in the project has clear plans for the transition phase to the future European grid infrastructure, ensuring sustainability of the projects' results through the NGIs of the partners' countries.

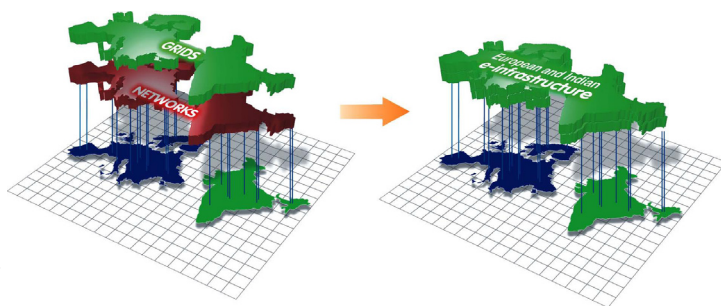


The EUFORIA workflow engine

EU-IndiaGrid's main objective is to connect the most relevant European grid infrastructure, EGEE, and the Indian grid infrastructures. Impressive achievements have been made in India in the e-Infrastructures domain in recent years. The key positions of the project's Indian partners in their country, and the project's bridging role between European and Indian e-Infrastructures, gave EU-IndiaGrid the opportunity to be at the centre of this development and to contribute effectively to improving cooperation between Europe and India in this field.

The launch of the multi-gigabit low latency National Knowledge Network (NKN) (<http://www.knowledgecommission.gov.in/downloads/news/news333.pdf>), the involvement of India in the TEIN3 project (<http://www.tein3.net>) and the peering with GÉANT of the 1 Gbps CERN-TIFR link for the LHC represent the most prominent landmarks India has recently achieved in terms of e-Infrastructures. These achievements represent important result for the LHC community and have laid the foundations for developments and significant strengthening of the Euro-India cooperation in the domain of international connectivity.

Successful collaborations have been fostered with the two main Indian grid infrastructures: the GARUDA National Grid Initiative, and the Regional Tier-II DAE-WLCG-grid. A milestone in this domain was the establishment of the Indian Grid Certification Authority (IGCA) by CDAC, one of EU-IndiaGrid's



The EU-IndiaGrid strategy

partners. The IGCA is officially recognised by the Asia Pacific Grid Policy Management Authority and this accomplishment was highly recognised by the Indian government. The project concluded in January 2009 with exceptional results, noted in the final project review. The EU-IndiaGrid obtained the highest score and its results and recommendations were considered the basis for future collaboration between Europe and Indian e-Science organisations.

EU-IndiaGrid2, Sustainable e-Infrastructures across Europe and India, was recently approved for EC funding. The EU-IndiaGrid2 consortium now aims to capitalise on the achievements of the first EU-IndiaGrid project and to build on the momentum attained in e-Infrastructures evolution in Europe and India, in order to proceed towards sustainable e-Infrastructures across the two continents for the benefit of scientific, educational and technological cooperation.

EU-IndiaGrid2

<http://www.euindiagrid.eu>

Start date: January 2010

End date: December 2011



EU-IndiaGrid2, Sustainable e-infrastructures across Europe and India, capitalises on the achievements and expertise developed by partners during the EU-IndiaGrid project and huge infrastructural developments in India. On this basis, EU-IndiaGrid2 is in the position to act as a bridge between EGEE and other European and Indian e-Infrastructures. EU-IndiaGrid2 will promote the continuous e-Infrastructure evolution in Europe and India, to ensure sustainable scientific, educational and technological collaboration across the two continents. Recently approved by the EC, EU-IndiaGrid2 plans to start in January 2010 with a duration of two years.

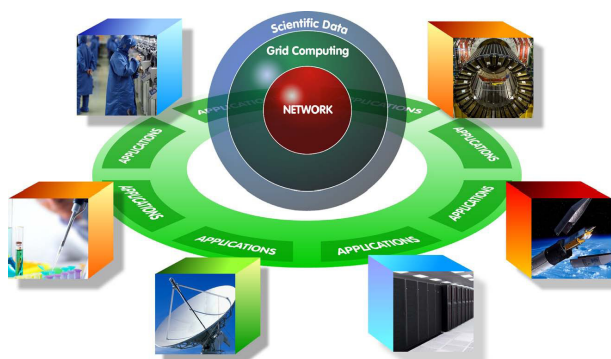
EU-IndiaGrid2's main objectives are to:

- ➔ consolidate and enhance cooperation between European and Indian e-Infrastructures for the benefit of Euro-Indian collaboration in e-Science. EU-IndiaGrid2 will make full use of the EU-IndiaGrid project results and of the strong cooperation links established with the foremost European and Indian e-Infrastructure initiatives, paving the way for successful sustainable cooperation

- ➔ support specific user communities in the exploitation of grid infrastructures in strategic areas. EU-IndiaGrid2 will support a set of applications in the domains of climate change, high-energy physics, biology and materials science which are considered strategic for Euro-Indian collaboration in the information and communication technologies domain

- ➔ ensure a sustainable approach to e-Infrastructures across Europe and India through dissemination actions, meetings and workshops. EU-IndiaGrid2 will continue supporting the 'Roadmap for Sustainability' outlined by the EU-IndiaGrid project relying on the progress towards the first two objectives and on targeted dissemination actions, meetings and events

- ➔ foster and enhance cooperation with other European initiatives in Asia and worldwide. EU-IndiaGrid2 will continue the strong cooperation links established by EU-IndiaGrid with the most relevant projects and institutions such as EGEE, EGI and GÉANT, and the major Indian e-Infrastructure Initiatives GARUDA National Grid Initiative and National Knowledge Network. It will also cooperate with regional projects including EELA-2, EUAsiaGrid and SEE-GRID-SCI, and EUMEDGRID-Support.



The EU-IndiaGrid2 approach

Building on the results obtained by its predecessor EUMEDGRID, EUMEDCONNECT and EUMED-CONNECT2 projects, EUMEDGRID-Support aims to reinforce the relevance of European e-Infrastructures in the Mediterranean and Middle-East regions.

The EUMEDGRID project has successfully deployed a region-wide pilot grid infrastructure in the Southern and Eastern Mediterranean. Currently finalising its work plan after a successful negotiation phase, EUMEDGRID-Support aims not only to consolidate and expand the existing grid infrastructure, but also to make a step forward towards its sustainability. The overarching objective of EUMEDGRID-Support is to retain the European and Mediterranean country dialogues achieved in the past as well as to increase stakeholder and community awareness on the fundamental importance of e-Infrastructures in the Mediterranean area and on their sustainability. The project will use the consolidated schema of a two-fold approach: a bottom-up approach, raising the awareness of researchers, students and technical personnel, which will exploit the usage of e-Infrastructures in their work and appreciate their value, and a top-down approach at the policy-level highlighting the benefits and justifying the necessity of e-Infrastructures to influential stakeholders to push for long-term stability and sustainability of such e-Infrastructures.

The main objectives of EUMEDGRID-Support are to:

- ➔ reinforce the perceived relevance of European e-Infrastructures in the Mediterranean area for the scientific communities, at the policy level and for the general public, disseminating the achievements and the impact obtained by the European investments in the related projects, also in cooperation with relevant initiatives
- ➔ strengthen the existing e-Science human network built by the previous EUMEDGRID project, widening it to new user communities and, possibly, to new countries. Achieving this objective will involve supporting existing and new applications, and reinforcing user communities
- ➔ support the consolidation and extension of the EUMEDGRID e-Infrastructure with emphasis on sustainability and high-level policy support.

EUMEDGRID-Support will continue to use gLite as the reference middleware distribution. The project will further pursue gLite deployment and maintenance of grid sites in the region.

It is expected to have joint dissemination and training activities specifically targeting users and administrators, with the aim of wider extension of the scope and adoption of EGEE in the Mediterranean region.



The booklet published in 2008 provides an overview of status and perspectives of e-Infrastructures in the region

GÉANT

<http://www.geant.net>

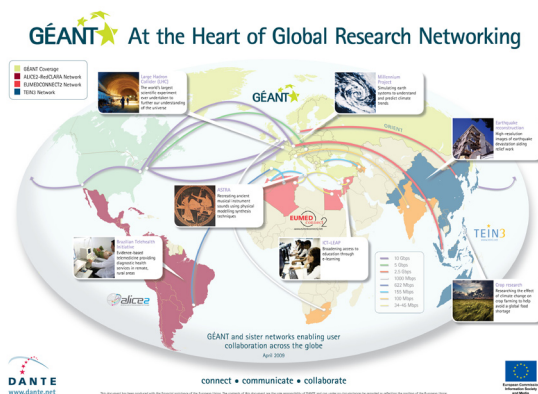
Start date: April 2009

End date: March 2013



With powerful links in place, the pan-European research and education backbone GÉANT and its sister networks TEIN3, EUMEDCONNECT2 and RedCLARA, respectively, in Asia-Pacific, Northern Africa and Latin America provide the underlying network infrastructure for a wide range of innovative grid-enabled applications across the world. Yet, it is not just the 'usual suspects' of radio-astronomers and high-energy physicists who benefit from the power of e-Infrastructures. Users in fields as varied as medicine, climate research and arts increasingly 'go grids', tapping into the huge computing power provided by connecting geographically distributed research and computing centres via the network(s).

Scientists of the EC-funded Circe project are now able to harness the processing power of multiple computer centres distributed across Europe and the southern Mediterranean through the high bandwidth connections of GÉANT and EUMEDCONNECT2, and address complex computational tasks in relation to climate impact studies. This research is helping to predict changes that may affect the Mediterranean region such as health, agriculture, tourism and energy supply. The Millennium project, supported by GÉANT's multi-gigabit connections, has created a state-of-the-art Earth System model that simulates the climate change over the last century and into the future.



*GÉANT: At the Heart of Global
Research Networking*

e-Infrastructures allow medical researchers to tackle huge data challenges associated with designing drugs against thalassaemia, malaria and other emerging diseases, thus contributing to saving lives. Using coordinated computers around the world, linked through research networks and grids, the projects can significantly reduce the length of time taken to find molecules with the potential for drug development.

Finally, applying advanced physical modelling techniques through distributed computers linked via the GÉANT and EUMEDCONNECT networks, virtual models of ancient instruments, such as the harp-like Epigonion, can be created and thus their lost sound revived. Seismic waves obtained from volcanoes across the world can be converted into melodies and used as scores for modern dance performances, which is an excellent example of how the global reach of GÉANT allows the fusion of art, science and technology.

Contact: helga.spitaler@dante.net



g-Eclipse

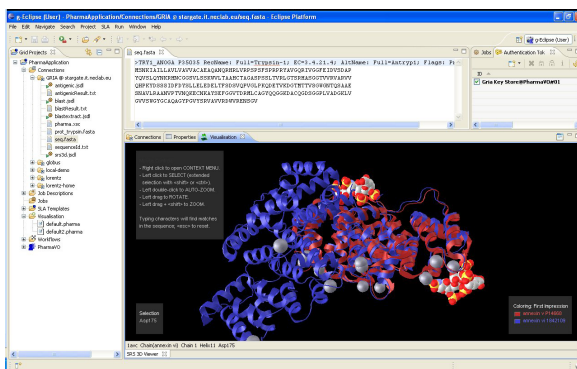
<http://www.geclipse.org/>

Start date: July 2006

End date: December 2008

“Accessing the Grid in 5 minutes” is not a vision any more. With g-Eclipse, inexperienced users are now able to start interacting with existing grid infrastructures within minutes, very much lowering the entry barrier and giving them a hitherto unknown experience of accessing grid infrastructures in a user-friendly way.

Based on the very popular Eclipse platform, g-Eclipse provides an integrated set of components for accessing grid infrastructures such as EGEE and cloud resources in a middleware-independent manner, both for users and software developers. End-users manage their data, their jobs, and generally interact with their resources via standardised graphical user interface elements. Middleware providers can implement the g-Eclipse framework for their middleware, benefiting from its rich set of common core functionalities and user interface widgets.



g-Eclipse performing the interactive visualisation of a pharmaceutical simulation

The project operates a Virtual Organisation (VO) on the EGEE production infrastructure and another VO on the GILDA training infrastructure, thereby profiting from being able to develop and test its components against a very large production-level grid as well as offering a new tool to future grid trainees on GILDA.

In the last year the project reached a crucial milestone with the availability of its first major release, including full user and developer documentation. The development was driven by the support of two exemplary industrial simulation workflows, demonstrating the tool in real-world use cases. This helped to further improve g-Eclipse’s gLite components, and allowed the final shaping of the GRIA grid middleware and Amazon Web Services cloud implementations. Other important additions in this last year include the infrastructure benchmarking and testing components, MyProxy authentication and support for the ‘Instrument Element’ service (for interacting with instruments) of the DORII project.

g-Eclipse was an EC-funded project. Currently, the g-Eclipse development continues as an open source project under the umbrella of the Eclipse Foundation, with contributions from several partners and related projects. Following the transition to EGI, the project foresees to collaborate with the Unified Middleware Distribution effort, and will cater for some of the National Grid Initiatives’ specific needs, such as the provision of pre-configured versions of the g-Eclipse for regional VOs.

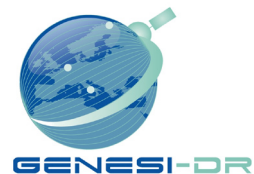
Contact: contact@geclipse.eu

GENESI-DR

<http://www.genesi-dr.eu>

Start date: January 2008

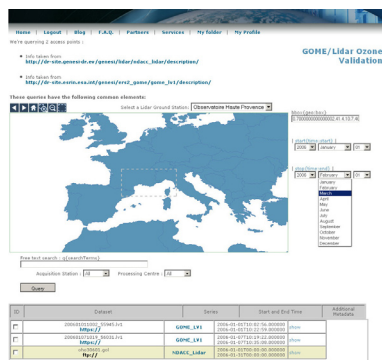
End date: December 2009



The EC-funded GENESI-DR (Ground European Network for Earth Science Interoperations - Digital Repositories) project started in January 2008 under the leadership of European Space Agency. The project aims to implement a data access infrastructure that will allow European and worldwide science users to locate and seamlessly access earth science (ES) digital repositories (DR).

GENESI-DR will operate, validate and optimise integrated access to and use of available data, information, products and knowledge originating from space, airborne and in-situ sensors from digital repositories dispersed all over Europe and beyond. Today, twelve different DRs hosting more than 50 diverse data series are accessible through the GENESI-DR portal. These are heterogeneous data series that include satellite and airborne sensor data, in-situ data, images and time series data, digital elevation models and model outputs. One of the DRs has been integrated in collaboration with the EGEE ES cluster.

A Memorandum of Understanding has been established between GENESI-DR and EGEE with the following goals: to demonstrate access to the ES data integrated in the GENESI-DR research infrastructure from the EGEE infrastructure, and to enable the EGEE ES community and GENESI-DR users to share applications across the projects' infrastructures. The first scenario selected to validate the functionality of the GENESI-DR – EGEE interface is related to GOME Level-1 ozone processing and validation with Lidar data, acquired at different locations. This application requires discovery and access to different typologies of ES data (satellite data and in-situ measurements stored in different places) and availability of a large grid infrastructure for exploiting the data.



GENESI-DR interface for GOME/Lidar Ozone Validation

The deployed scenario demonstrates how the EGEE ES community can easily access ES data archived in GENESI-DR federated DRs, such as GOME data and in-situ Lidar soundings and how to respect the data policy rules defined by the different cooperating data owners, through agreed interfaces and services. It also shows the interoperability of EGEE and GENESI-DR infrastructures.

With the above approach, GENESI-DR will provide scientists with enhanced data discovery capabilities, better handling of metadata, and availability of powerful computational resources. This will consequently pave the way for new possibilities for ES scientists to address complex applications where discovery, access, and exploitation of data stored at different locations are needed.

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GridPP is now in its third phase and ninth year, and is the UK's contribution to the worldwide Large Hadron Collider Computing Grid (wLCG). Formed in 2001 with the express purpose of supplying the computing needs of the UK's particle physicists, it now oversees 17 sites across the country supplying 15k CPUs and 5 PB of storage to the grid.

Despite its focus on the LHC, GridPP is also very interested in multi-disciplinary uses of grid technology, contributing over 100 million hours of CPU time to EGEE in the last five years. This work was done to support 30 different Virtual Organisations ranging from image analysis to geological research. For the biomedical research done by the WISDOM project, the UK has provided over a third of the project's computing needs.

The most visible tool developed by GridPP is the Real Time Monitor which displays the work being processed by the Grid in a user-friendly manner. This tool has even featured on BBC News and has been an attraction at many international conferences.

Technology transfer, bringing grid technology to industry, is something GridPP has always been involved in. The Science and Technology Facilities Council (STFC), which funds GridPP, has been instrumental in making this easy through its Knowledge, Innovation, Technology Enterprise (KITE) club. STFC has helped many partnerships get started with small grants, and helps small and medium enterprises to experiment with grids.

As EGEE transitions to EGI, GridPP is working together with its UK partner, the NGS (National Grid Service), to form the UK's National Grid Initiative. This will combine the experience gained from both projects helping the UK to become a major contributor to the future of European grid computing.



The GridPP RTM: A 3D visualisation of grid operations, showing work being transferred around the globe as it happens

GridTalk

<http://www.gridtalk-project.eu>

Start date: May 2008

End date: April 2010



GridTalk brings the success stories of Europe's e-Infrastructure to a wider audience. The project coordinates the dissemination output of EGEE and other European grid computing efforts, ensuring their results and influence are reported in print and online.

GridTalk publishes articles, known as GridBriefings, which provide timely summaries of policy-oriented reports or key issues. Written in jargon-free language, these items target scientists and the public, as well as non-technical policy-makers in government and industry. To date GridTalk has released eight such GridBriefings, which have also been collected together in an annual report. Issues covered include, the transition to EGI, grids and standardization, grids and clouds, and grids and green computing. EGEE has collaborated closely in both the production and distribution of these briefings, especially on the issues 'What is a grid?' released in August 2008 and 'Facing the skills shortage: attracting more women in ICT' released in March 2009.

Building on the already successful GridCafé (<http://www.gridcafe.org>) website, produced by CERN in 2003, GridTalk is working to further enhance the site. GridCafé includes discussion of EGEE and its activities, and has now been redesigned and updated to include a debate section for topics such as the future of e-Science. The website has also recently been translated into Spanish, with a French version to follow.



The GridTalk products: weekly newsletter iSGTW, the GridBriefing annual report, the GridCast blog, and websites GridCafé and GridGuide

GridTalk has continued to add to its series of GridCasts (<http://www.gridcast.org>), where attendees at grid events blog about their experiences.

Events covered in 2009 include the HealthGrid conference in Berlin and the joint EGEE-OGF User Forum in Catania. As well as including EGEE members as bloggers, GridTalk runs GridCasts from EGEE conferences, sharing news and events with the wider community. In addition, a new website, GridGuide (<http://www.gridguide.org>), has been set up to show the human face of grid computing. GridGuide incorporates articles from more than 40 grid sites worldwide, including 50 interviews and more than 20 videos, and features key EGEE sites, applications and people.

iSGTW (<http://www.isgtw.org>), the last strand of GridTalk, is a successful weekly scientific grid computing e-Newsletter that has over 5,000 subscribers, from 198 countries speaking 120 different languages. Formed as a joint project between Open Science Grid in the US and EGEE in Europe, GridTalk is now the European partner in iSGTW. The newsletter regularly includes articles highlighting EGEE's success stories, achievements and events, and also covers the activities of EGEE collaborating projects.

Contact: s.pearce@qmul.ac.uk



Health-e-Child

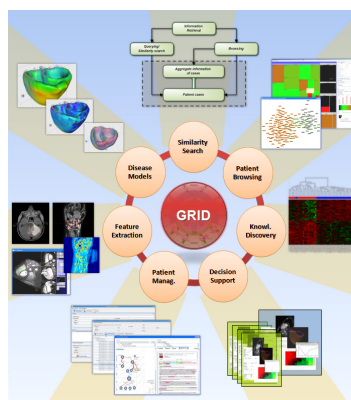
<http://www.health-e-child.org>

Start date: January 2006

End date: April 2010

Health-e-Child endeavours to respond to the increasingly pressing demand to fully integrate and exploit heterogeneous biomedical information for improved clinical practice, medical research and personalised healthcare. The project brings together four major paediatric hospitals: NECKER Enfants Malades in Paris, Ospedale Pediatrico Bambino Gesù in Rome, Istituto Giannina Gaslini in Genoa, and the Great Ormond Street Hospital in London, with several European companies, university groups and research centres blending unique inter-disciplinary expertise in information-based medical technology.

Addressing the challenge of integrating and analysing the large amount of data, information and knowledge shared by its clinical centres, the project has adopted the robust, scalable and high performance EGEE gLite middleware. Three years of intensive work have resulted in a large grid network of twelve collaborating sites across Europe and new innovative models addressing physicians' requirements. The project's main clinical areas of concern are: clinical decision support, knowledge discovery and disease modelling of the paediatric heart (cardiomyopathy, tetralogy of fallot), inflammatory (juvenile idiopathic arthritis), and brain tumours (gliomas).



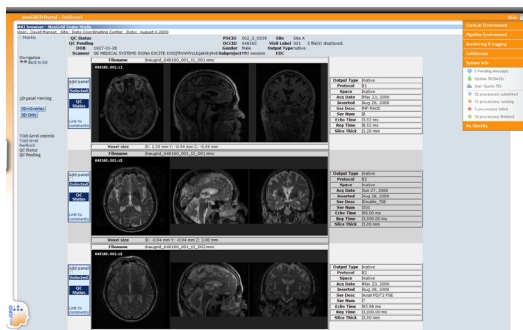
The Health-e-Child Platform and Applications

As a consequence to this work, healthcare professionals can now freely and seamlessly use the grid environment to conduct large studies and exchange expertise within the project's environment. The platform handles medical data ranging from genetics to imaging and clinical by synthesising those in a cohesive unified whole. This harmonised view of the data forms the basis of personalised treatment, comparison, and identification of different individuals' classes based on biomedical profiles. Physicians who have access to the system can, after authentication and authorisation checks, browse cases of European children enrolled in the project's programme, identify similar cases either locally or in other participating hospitals, and view case histories. The goal is to assist them in better understanding rare conditions and providing input to their decision making. It is also foreseen for the system to be used by clinical researchers to validate hypotheses and act as a collaborative tool to assist in the design, development and personalisation of disease models. Recently awarded Best Demonstration at Europe's largest Information and Communication Technologies conference (ICT 2008 in Lyon), the Health-e-Child platform has demonstrated its relevance and maturity.

Health-e-Child supports EGEE's transition plans to the future European grid. The project plans to report its experiences to the EGEE life science community, and hopes to become its reference infrastructure for healthcare professionals.

The neuGRID project aims to establish a distributed e-Infrastructure interconnecting major clinical research centres in Europe, providing neuroscientists with advanced technologies to conquer Alzheimer's disease and neurodegenerative pathologies in general. The neuGRID e-Infrastructure will provide European neuroscientists working in the field of Alzheimer's disease imaging, including the European Alzheimer's Disease Consortium and the European Alzheimer's Disease Neuroimaging Initiatives, with an environment that has hooks to the largest image dataset to date (North American ADNI and AddNeuroMed), with applications and algorithms that can work with these images.

In neuGRID, imaging data is paired with grid-enabled computationally intensive data analyses, allowing scientists to take advantage of distributed computing resources. Based on cutting edge technologies, neuGRID is pioneering an advanced service-oriented architecture with data, workflow and security services, and a web-based front-end for end-users, using the EGEE gLite software as the underlying middleware. The aim is to empower end-users to create, use, combine and validate new image processing, and data mining algorithm pipelines against medical data.



The neuGRID Web Portal - Data Acquisition Interface

Currently, the neuGRID platform (<http://neugrid.healthgrid.org>) offers a novel 'algorithm pipeline' that analyses the cortical thickness of 3D magnetic resonance brain images, as an indicator of Alzheimer's disease and its progression. This pipeline has been ported to run on the neuGRID infrastructure and is already available to neuroscientists for testing. In the coming months, as the neuGRID platform is further enhanced, the project will look into ways on how to exploit the neuGRID solutions. Pharmaceutical industries, for example, could use image markers to study the effect of certain drugs on chronic brain diseases.

Similarly, collaboration with other projects such as French NeuroLOG, the Canadian CBRAIN and the American LONI initiatives is planned. Ultimately, neuGRID aims to become the 'Google' for Brain Imaging, offering a grid-based, easy-to-use and interoperable set of tools with which scientists can perform analyses and collaborate internationally.

neuGRID supports EGEE's transition plans to the future European grid. Similar to the strategy of the Health-e-Child project, neuGRID is actively collaborating with the EGEE life science community and hopes to become its reference infrastructure for neuroscientists.

OGF-Europe is committed to the broad adoption of open standards for innovation in Europe and worldwide. To this end, OGF-Europe has special emphasis on: cloud and grid computing, creative industries, digital repositories, green IT, software development and telecommunications, all key areas for innovation in Europe, as well as focused seminars and international events.

Interoperability offers huge benefits not only for the broad spectrum of users within business and research communities but also for e-Science application developers, by ensuring freedom to choose services deployed in different grids based on functionality and offering access to a far greater amount of resources than is currently available to them. Similarly in enterprise, standards enabling interoperation allow businesses to choose the right products and services to meet specific needs, accelerating the growth of important new markets where new ideas and innovations can be adopted.

From an enterprise perspective, OGF-Europe's Industry Expert Group, is evaluating how the adoption of cloud computing is impacting on the IT landscape in terms of drivers, barriers and new business models through the Cloudscape workshops.

In terms of research, OGF-Europe has been instrumental in setting up the Digital Repositories Research Group (DR-RG) within OGF and in supporting a series of focused events in Europe and beyond. The project has also organised a series of in-depth tutorials with the aim of developing the skills to foster implementation of technical specifications.

In pursuing these goals, OGF-Europe has synergised closely with EGEE in both the technical work conducted on a largely voluntary basis and through events, such as the 4th EGEE User Forum/OGF25 & OGF-Europe's 2nd International event, in Catania, March 2009. In collaboration with BELIEF-II and e-IRGSP2, OGF-Europe is currently exploring governance models underpinning long-term sustainable grid infrastructures through EGI, while the area of standards and certifications to improve the quality of e-Infrastructure software is pursued in cooperation with ETICS 2.

OGF-Europe's newly developed channel gives access to a spectrum of resources, such as reports on adoption challenges, best practices and case studies, which are automatically generated through novel web 2.0 paradigms and personalised visitor profiles.

Contact: info@ogfeurope.eu



Communities working together to foster open standards

SEE-GRID-SCI

<http://www.see-grid-sci.eu>

Start date: May 2008

End date: April 2010

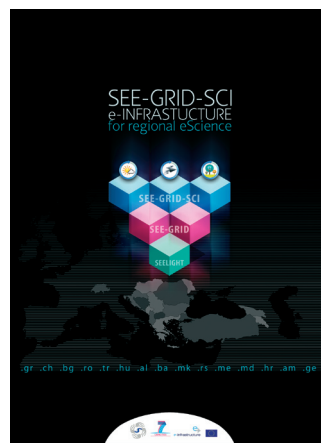


The SEE-GRID-SCI (SEE-GRID e-Infrastructure for regional e-Science) project aims to engage international communities (seismology, meteorology and environmental protection), further stimulate the use and expansion of the existing regional e-Infrastructure, and capitalise on the existing human network to further strengthen scientific collaboration and cooperation amongst the participating communities from South East Europe (SEE). This activity, together with a set of coordinated actions aimed at strengthening the National Grid Infrastructures (NGI) in the region, aims to ensure operational and organisational maturity, as well as the scientific uptake of the e-Infrastructures.

The seismology VO currently runs six applications ranging from seismic data service to earthquake location finding. The Meteorology VO follows an innovative approach to weather forecasting using a multitude of weather models. The environmental VO supports six applications focusing on environmental protection/response and environment-oriented satellite image processing. Application-level services and operational tools are being actively developed by the project; eleven different services and seven tools are increasingly used by applications communities.

The project currently operates the regional grid infrastructure, maintaining core services for three discipline VOs, testing and catch-all VOs. A set of operational and monitoring tools is maintained and used to manage and assess the status of the infrastructure. The average grid site availability is currently 91.17%, with around 1.7k dedicated CPUs and 290 TBs of storage.

The project has produced a list of metrics used as a basis for quarterly NGI monitoring. An 'NGI cookbook' has been produced with detailed NGI guidelines, proving to be a crucial guideline for maturing the NGIs within and beyond the consortium. Specific support has been provided to partner countries not represented in the EGI Policy Board. Finally, the NGI assessment document has been produced, providing detailed country reports, as well as the main results of NGI developments and future action plans.



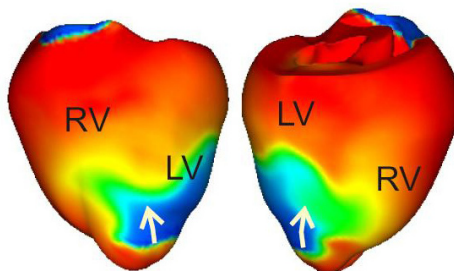
SEE-GRID-SCI Poster

SEE-GRID-SCI, following in the footsteps of its predecessors, SEE-GRID and SEE-GRID-2, works very closely with EGEE. Both projects have signed a Memorandum of Understanding (MoU) with the aim of ensuring interoperation of both projects' infrastructures and interoperability of related services towards a sustainable pan-European grid. The MoU also covers activities related to application porting, development of application-level services, and monitoring tools.

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Since 2001 grid infrastructures within the UK have developed around two key activities: GridPP (UK Particle Physics Grid) and the NGS (National Grid Service) which has a broader remit to engage with all research domains across UK universities.

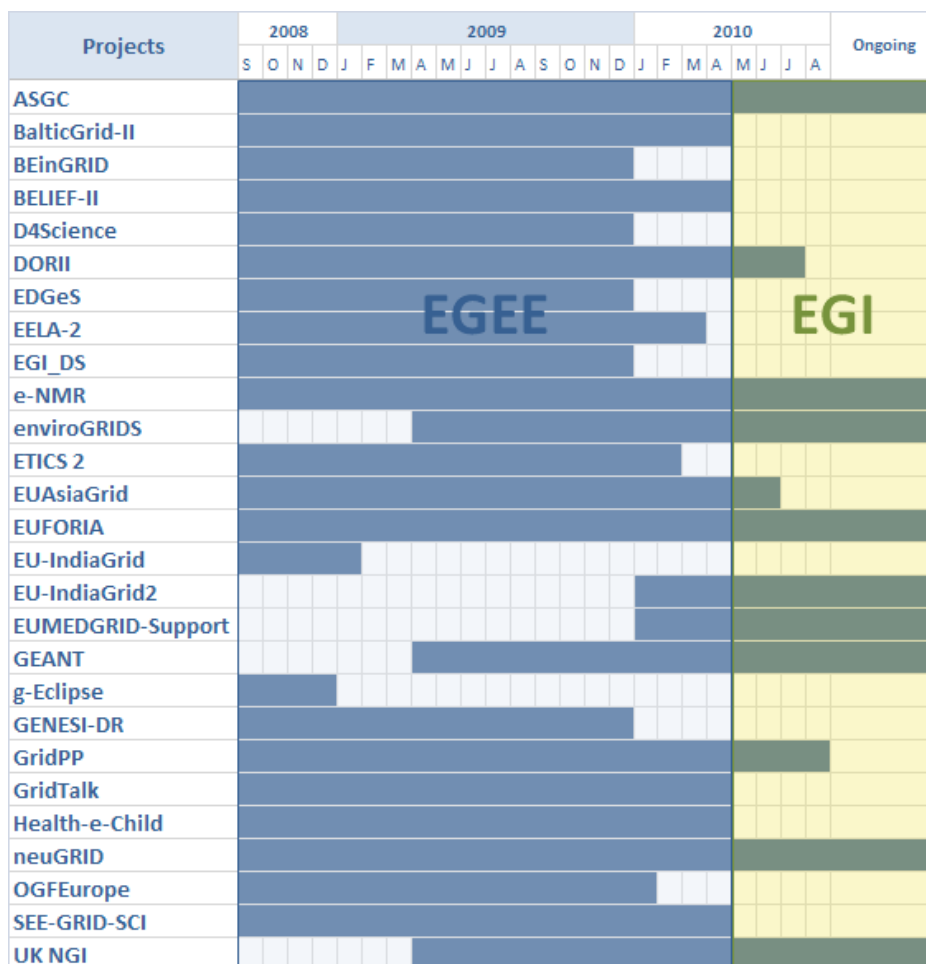
Over the last twelve months, with the development of the EGI plans and requirements for an NGI (National Grid Infrastructure), the UK NGS and GridPP have started work to define those services required at the national level that can be provided by an NGI and in turn provide the gateway, or point of contact, with the EGI. To lead this activity, the NGS has been given the remit by its stakeholders to act as the initial UK NGI during this development phase. Through joint collaboration, using the existing EGEE Joint Research Unit structure within the UK, and joint attendance at conferences and other events, the NGS and GridPP have been engaging with their respective user communities to understand the requirements that an NGI must provide and hence relay input to the EGI structure. This engagement has also included working with partners such as OMII-UK and Grid Ireland under the banner of the UK and Ireland Federation, to understand the broader requirements for providing a national and international e-Infrastructure.



Connecting Infrastructure, Connecting Research

Within the UK, the NGS also has the requirement to become a sustainable national e-Infrastructure, which correlates directly with the broader European agenda. As part of NGS's phase three developments, starting April 2009, examination of potential business models, in order to achieve sustainability within the UK, have been defined as milestones in the NGS plan for the next year. This national level activity is now being developed in order to encapsulate the additional requirements of being an NGI within an EGI framework, whilst maintaining a focus on providing a national e-Infrastructure.

Project Lifetimes as from September 2008



This chart shows the end dates of projects currently ongoing during EGEE and also which projects will continue into EGI's lifetime.

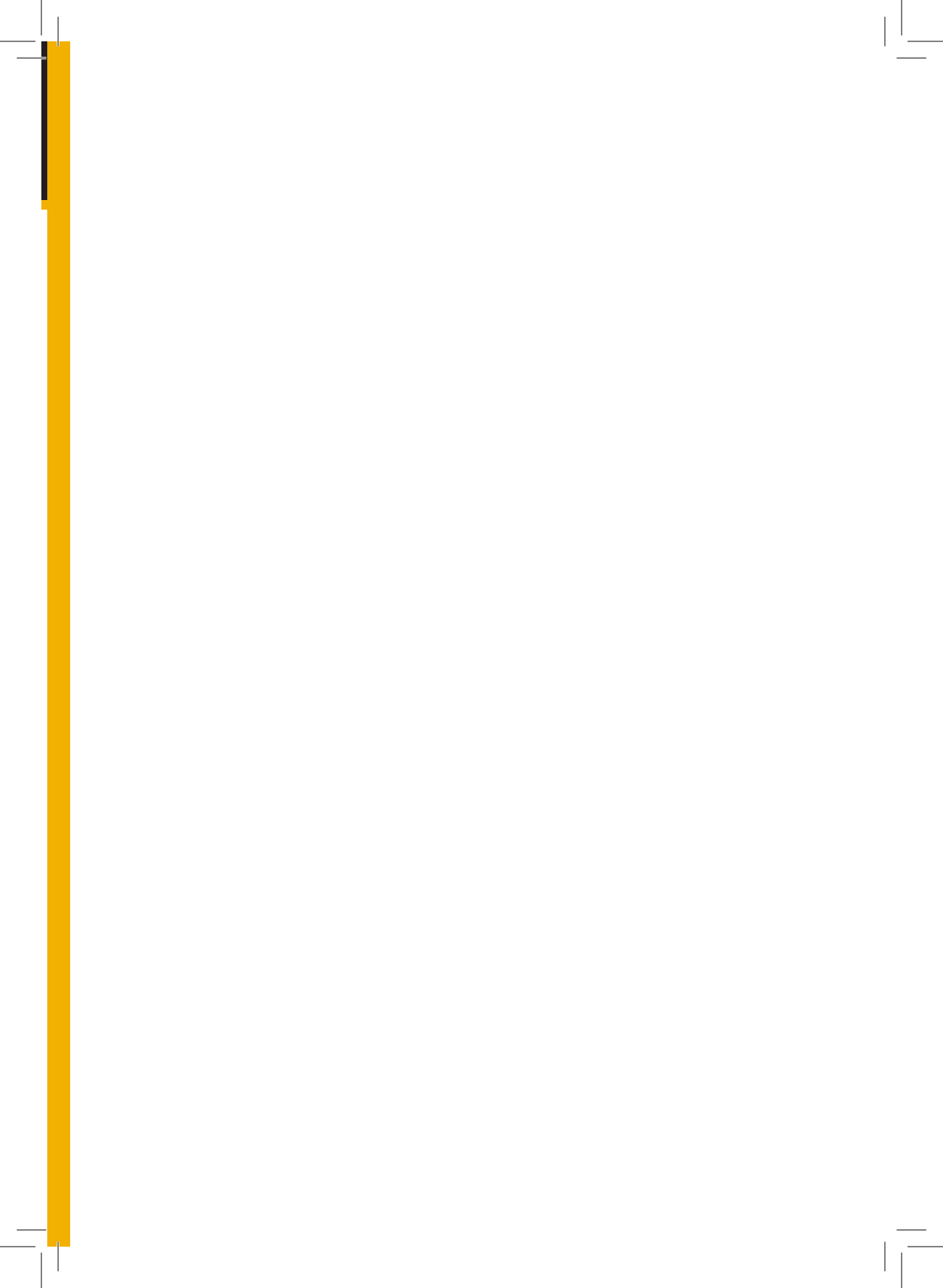
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