



EGI-InSPIRE

EGI GLOBAL TASK REVIEW

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Abstract

This report provides a comprehensive list of the various services provided for EGI through EGI.eu and its external technical partners. The services are self-assessed from a managerial perspective with a score ranging from 1 to 5 (with 1 being the lowest and 5 the highest) including a brief analysis of the score and how it could be improved in future years. This report also includes the costs per service as reported by project partners. A detailed technical reporting of the work performed by these services has been contained within the project's Quarterly Reports.

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II. DELIVERY SLIP

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III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
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1	08/02/2013	First draft of content	Sy Holsinger/EGI.eu
2	20/02/2013	Addition of some manager’s contributions	Sy Holsinger/EGI.eu
3	26/02/2013	Second round of manager’s contributions	Sy Holsinger/EGI.eu
4	07/03/2013	Final additions, cost updates, executive summary	Sy Holsinger/EGI.eu
5	15/03/2013	Revisions from internal review	Steven Newhouse/EGI.eu
6	22/03/2013	Final updates for external review	Sy Holsinger/EGI.eu
7	19/04/2013	Revised version from external review comments	Sy Holsinger/EGI.eu

IV. APPLICATION AREA

This document is a formal deliverable for the European Commission, applicable to all members of the EGI-InSPIRE project, beneficiaries and JRU members, as well as its collaborating projects.

V. DOCUMENT AMENDMENT PROCEDURE

Amendments, comments and suggestions should be sent to the authors. The procedures documented in the EGI-InSPIRE “Document Management Procedure” will be followed:

<https://wiki.egi.eu/wiki/Procedures>

VI. TERMINOLOGY

A complete project glossary is provided at the following page: <http://www.egi.eu/about/glossary/>.



VII. PROJECT SUMMARY

To support science and innovation, a lasting operational model for e-Science is needed – both for coordinating the infrastructure and for delivering integrated services that cross national borders. The EGI-InSPIRE project will support the transition from a project-based system to a sustainable pan-European e-Infrastructure, by supporting ‘grids’ of high-performance computing (HPC) and high-throughput computing (HTC) resources. EGI-InSPIRE will also be ideally placed to integrate new Distributed Computing Infrastructures (DCIs) such as clouds, supercomputing networks and desktop grids, to benefit user communities within the European Research Area.

EGI-InSPIRE will collect user requirements and provide support for the current and potential new user communities, for example within the ESFRI projects. Additional support will also be given to the current heavy users of the infrastructure, such as high energy physics, computational chemistry and life sciences, as they move their critical services and tools from a centralised support model to one driven by their own individual communities.

The objectives of the project are:

1. The continued operation and expansion of today’s production infrastructure by transitioning to a governance model and operational infrastructure that can be increasingly sustained outside of specific project funding.
2. The continued support of researchers within Europe and their international collaborators that are using the current production infrastructure.
3. The support for current heavy users of the infrastructure in earth science, astronomy and astrophysics, fusion, computational chemistry and materials science technology, life sciences and high energy physics as they move to sustainable support models for their own communities.
4. Interfaces that expand access to new user communities including new potential heavy users of the infrastructure from the ESFRI projects.
5. Mechanisms to integrate existing infrastructure providers in Europe and around the world into the production infrastructure, so as to provide transparent access to all authorised users.
6. Establish processes and procedures to allow the integration of new DCI technologies (e.g. clouds, volunteer desktop grids) and heterogeneous resources (e.g. HTC and HPC) into a seamless production infrastructure as they mature and demonstrate value to the EGI community.

The EGI community is a federation of independent national and community resource providers, whose resources support specific research communities and international collaborators both within Europe and worldwide. EGI.eu, coordinator of EGI-InSPIRE, brings together partner institutions established within the community to provide a set of essential human and technical services that enable secure integrated access to distributed resources on behalf of the community. The production infrastructure supports Virtual Research Communities (VRCs) – structured international user communities – that are grouped into specific research domains. VRCs are formally represented within EGI at both a technical and strategic level.



VIII. EXECUTIVE SUMMARY

This report describes the EGI Global Tasks being offered throughout the EGI ecosystem and provides a self-assessment, based on the newly defined service portfolio, as to how they are currently being offered and provides a means for ensuring their continuous improvement.

The evolution of these services into a service portfolio was first conducted with the support of the FedSM project that helped apply ITIL best practices for improving service delivery. Each service was then reviewed during a community workshop held in January 2013 in Amsterdam.

This report provides a self-assessment of these services from a managerial perspective with a score ranging from 1 to 5 including a brief analysis of the score and how it could be maximised in the future. The majority of the scores have improved from last year with an overall average score indicating that the service exceeded expectations or an excellent service was delivered.

Following the second EC review, the focus has been put on improving business practices and overall service management. Therefore, this service portfolio was also used to analyse service costs and conduct impact assessments for strategic decision making within the EGI Council. The costs are provided within this report by service area and individual service as well as broken down between operation, maintenance, development, coordination, and support costs.

As EGI continues to evolve its service portfolio, the presented services will continue to be defined, developed and refined during the course of the EGI-InSPIRE project as requirements, technology and the community align themselves towards EGI's 2020 strategy.

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1 INTRODUCTION

The EGI Global Tasks are the responsibility of the EGI.eu organisation and are undertaken by EGI.eu staff in Amsterdam and by staff based at participants and associated participants' institutions within the EGI Community. These activities are currently funded through EGI.eu, contributions from the hosting institution and the European Commission through the EGI-InSPIRE project for the benefit and use of the whole community.

The managers of each service were requested to provide their overall assessment from a managerial perspective on how each service was progressing and suggestions to improve the service in the coming year. In each of the overarching areas, assessments were also collated from external members for their feedback as well.

Under each service, the following format was followed:

- Description: Brief overview of the service.
- Assessment: 1-2 paragraphs focusing on managerial aspects. Technical aspects are covered by the project's Quarterly Reports.
- Score (1-5):
 - 1 = An unacceptable level of service was delivered
 - 2 = A level of service that was below expectations was delivered
 - 3 = An acceptable service level has been delivered
 - 4 = A level of service that exceeded expectations was delivered, but there is room for improvement
 - 5 = An excellent service was delivered and should be considered as best practice.

A summary of the scores can be found in section 7.1 with the costs of the services summarised in Section 7.2.



2 COORDINATION

2.1 Project and Programme Management

Description: The project and programme management functions within EGI.eu are to ‘glue’ together the different activities taking place within the EGI community and ensure that they are aligned with the strategy developed through the EGI Council and EGI.eu Executive Board. These policies are then implemented through the coordination functions that have been established at EGI.eu for community activity, and in the ‘headquarters’ functions that EGI.eu staff undertake.

Supporting Activities:

- **Project Management and Planning:** this activity provides the managerial effort to lead the projects or activities within the projects coordinated by EGI.eu towards meeting the objectives while minimising the risks.
- **Governance Body Coordination:** this activity provides coordination for the EGI.eu governance bodies: the Council and the Executive Board.
- **Admin, Finance and Secretariat:** this activity supports the governance functions of EGI.eu and governing bodies, but also for the EC projects that EGI.eu is coordinating or contributing to. The activities cover the needs of the EGI.eu staff as well.
- **Collaboration Tools (wiki, indico, mailing lists, RT, web hosting, etc.):** this activity provides the technical support to run a range of collaboration tools for the EGI collaborations (e.g. website, wiki, meeting planner, mailing lists, document server, timesheet tool).

Assessment: The EGI.eu Executive Board met at regular fortnightly intervals and was complemented in its governance activities through four EGI Council meetings during the project year. The senior managers within EGI.eu met at least monthly to review technical progress across the organisations and to establish organisation wide strategies and execution plans.

EGI.eu continued to participate in and develop EC project proposals. The EGI-InSPIRE and eScienceTalk projects coordinated by EGI.eu, continue in their successful execution. The e-FISCAL, BioVel BioMedBridges and ENVRI projects continued. During the project year the HelixNebula, ER-Flow, FedSM and DCHRP projects started with EGI.eu participation. Financial and administrative support was provided across these projects and the 26 staff at EGI.eu working or supporting them.

EGI.eu led the development of the ‘EGI 2020 Strategy’, which was endorsed by the EGI Council at the start of the project year. This strategy document established for the first time the long-term priorities for community activity and how it would develop.

The collaboration tools used by EGI.eu and the community continued to function and were regularly upgraded during the year. A Shibboleth Identity Provider was deployed alongside EGI’s Single Sign On (SSO) service to provide a mechanism other than LDAP for the integration of other services with EGI.eu’s.

Score: 4

2.2 Operations Coordination

Description: Operations coordination drives through the Operations Management Board future developments in the operations area by making sure that EGI's operations evolve with the needs of its user community and to support the integration of new resources and middleware platforms. It does this by providing coordination and management and by developing policies and procedures for the operational services that are integrated into the production infrastructure through the operational support of distributed operations teams. Coordination of software deployment and gathered feedback is delivered through fortnightly operations meetings.

Supporting Activities:

- **Operations Management Coordination:** The coordination of operations is delivered at a European level through the Operations Management Board, which is the operations policy body responsible of the daily running of the infrastructure and of driving its change and evolution. The Operations Management Board is responsible of the approval of the yearly activity plan and met regularly on a monthly basis [R1]. From PY3 the coordination NGI operations coordination will be complemented by user community operations, which will be delivered through the User Community Board.
- **Operations Integration Coordination:** It supports the integration of various software stacks into the production infrastructure.
- **Coordination of Tool Development:** It ensures that software maintenance and development activities for EGI operational tools are harmonised, meet the requirements identified by the user and operations communities according to their priority and EGI.eu technical services meet the needed quality of service.
- **Service Level Management:** It is responsible of service quality assessment, reporting and follow-up on a monthly basis for EGI.eu services, NGI services and Resource Centre services.
- **Grid Oversight:** It is responsible of the supervision of the activity performed nationally by the Regional Operator on Duty (ROD) teams of the EGI Operations Centres, and to assist existing ROD teams in user and operations support, including the Operations Centre certification and decommissioning.
- **Documentation:** This activity includes the organisation of documentation activities, including the development of new procedures and documentation items with the technical support of NGI/EIRO experts, and the periodic update of the existing documentation base.
- **Network Monitoring and Support:** EGI provides network support for the resolution of end-to-end network performance issues. This includes support to tools for troubleshooting and monitoring of network connectivity and IPv6 readiness testing activities.

Assessment: The Operations Management Board met on a monthly basis during PY3 successfully driving the EGI operations agenda. It is a large board with high levels of NGI participation both in terms of quantity and quality. Two face-to-face meetings were organised in co-location with CF12 and TF12. The TF12 meeting was devoted to the topic of EGI operations sustainability. The yearly activity plan [R2] was successfully defined and approved. Operations Management Coordination is also provided by bi-weekly meetings that are focused on the follow-up of specific operations



activities and to the discussion of software testing and deployment issues.

The needed procedures and processes for operations integration have been established to allow an easier integration. Specifically, the GOCDB has evolved into a tool where custom service types can be registered, the SAM extensions require the provisioning of third-party probes and protocols, and the format for usage record publishing has been evolved to encompass different software stacks and resource types. New integration activities were started to support user communities needing integrated access to resources provided by EGI, EUDAT and PRACE. During PY3 the coordination of this activity was handed by SRCE to EGI.eu.

Coordination of operations tool development was run effectively in PY2 [R3]. EGI.eu technical services and the related service level targets are now part of the EGI.eu Operational Level Agreement [R4], which was approved in PQ12. Service level reporting of EGI.eu tools is now run in production since November 2012 thanks to the support of a new reporting module in SAM.

Service level reporting has been greatly enhanced during PY2 through extensions that provide greater automated handling of routine tasks through the Operations Dashboard. This level of automation is expected to be extended to NGI and EGI.eu services in the future. Additional support duties are the management of availability profiles, the management of monthly report re-computations and the maintenance of reporting-related procedures. It is proposed that service level management activities are transferred to the central grid oversight team (COD).

Grid Oversight has been gradually evolving to embrace service level management activities for the monitoring of the monthly performance delivered by services of the Resource Centres and NGIs/EIROs according to the service level targets defined in the established EGI Operational Level Agreements. Grid Oversight successfully contributed to additional technical activities such as supervising the retirement of unsupported software from the production infrastructure, the technical assessment of monitoring tests and the proposal of improvements in the GOCDB business logic.

The grid oversight function is foreseen to evolve from an oversight of all Operations Centre to a targeted technical support action to a number of activities, which include:

- The technical support to new Resource Centres and Operations Centre.
- The assessment of status of the operations tools supporting daily operations and the leading of working groups to address the issue identified.
- Service level management of all services to EGI customers and EGI partners is regulated by user SLAs and OLAs. This includes activities related to the establishment of centrally managed resource offering through user SLAs.

The coordination of documentation activities was handed by CSC to EGI.eu during PY3. The organisation of documentation on wiki was greatly improved by creating sections dedicated to users and resource operators. New menus were created to make the documentation tree more easily accessible. Guidelines were provided to all wiki authors to ensure that the wiki documentation space grows consistently and in an organised fashion.

The number of incident records handled by the Network monitoring and support unit is very limited. EGI is planning to strengthen its collaboration with DANTE and its partners for the provisioning of



network support as a services leveraging on existing expertise and support structures offered by GEANT and National Research and Education Networks. A MoU [R5] was recently established with DANTE to investigate the implementation of a network support as a service provided by DANTE through its partners to support EGI users in the following areas: network performance, network monitoring and troubleshooting through perfSONAR Multi-Domain Monitoring (perfSONAR MDM) and provisioning of EGI technical services on IPv6. The feasibility of this provisioning model will be investigated in early 2013. In case of success of this implementation study, the EGI Global Task can be discontinued once alternative support channels are established. The proposal is to hand the provisioning of this service to external partners.

Score: 4.5

2.3 Technology Coordination

Description: Technology Coordination is the umbrella service pertaining to a number of cross-organisational technology evolution aspects. Comprised of three main supporting activities, technology coordination responds to continuously changing user requirements with (a) coordinating technology suppliers, (b) technology roadmaps and (c) software provisioning.

Supporting Activities:

- **Supplier Management:** Strategic technology planning and technology supplier management is provided through the Technology Coordination Board (TCB). Structuring the EGI e-Infrastructure into strategic capabilities and corresponding suppliers, the TCB ensures consistent delivery of technology services by its suppliers through common IT Service Management.
- **Technical Roadmapping:** Integrating strategic requirements with service-specific and domain specific requirements, the technology roadmap activity collaborates with the technology supplier's change management services to provide a stringent and coordinated strategic e-Infrastructure evolution across all EGI platforms.
- **Software Provisioning:** To deliver the roadmap in technical tangible artefacts that can be deployed by the EGI production infrastructure, the EGI UMD Release Team coordinates with the supplier's release management teams to provide specific, concrete and reliable release schedules to which the EGI software repository will be updated, which in turn is used by the federated EGI Resource Provides to provision the EGI e-Infrastructure.

Assessment: Having started with the technology coordination across one predominant technology platform and very few technology suppliers, the foundational processes and policies were laid out and literally "tried out" and improved by all stakeholders. With the imminent ending of the EMI [R6] and IGE [R7] projects, EGI will have to mature and professionalise further the execution of the necessary processes and activities. However, the scope and responsibilities of the post-EMI and IGE landscape are becoming clearer. Although far from perfect, the core of each service is evident and is improving.

Score: 3

2.4 Security Coordination

Description: Security is recognised as an important aspect of e-Infrastructures and requires co-ordination between the EGI participants at various levels, in particular for the prevention and handling of incidents. Various EGI central groups carry out this co-ordination role. The security policy group (SPG) is responsible for developing security policies. The Software Vulnerability Group (SVG) aims to eliminate existing software vulnerabilities from the deployed infrastructure and prevent the introduction of new ones. The EGI Computer Security Incident Response Team (CSIRT) is responsible co-ordinating operational security in areas of security incident response, security monitoring, security training and dissemination, as well as carrying out security drills (cyber-security exercise) to improve the response to future incidents.

Supporting Activities:

- **Security Operations Coordination:** Central coordination of the security activities ensures that policies, operational security, and maintenance are compatible amongst all partners, improving availability and lowering access barriers for use of the infrastructure. This coordination ensures that incidents are promptly and efficiently handled, that common policies are followed by providing services such as security monitoring, and by training and dissemination with the goal of improving the response to incidents. The overall incident response capabilities of the sites, also with respect to new technologies introduced by the user communities (VOs), such as the VO-Job-submission frameworks, are frequently assessed through the EGI-wide security drills.
- **Security Policy Coordination:** Security policy development covers diverse aspects, including operational policies (agreements on vulnerability management, intrusion detection and prevention, regulation of access, and enforcement), incident response policies (governing the exchange of information and expected actions), participant responsibilities (including acceptable use policies, identifying users and managing user communities), traceability, legal aspects, and the protection of personal data. In an environment without central control, such as EGI, common identity management such as provided by the IGTF, is needed to ensure unique and persistent assignments of rights and privileges.
- **Liaison external security organisations:** Since research is global, such policies must be coordinated with peer infrastructures in Europe and elsewhere, such as PRACE-RI, Open Science Grid, XSEDE, and like efforts in the Asia Pacific. This happens through liaison with policy bodies such as EUGridPMA and IGTF.
- **Security Incident Response:** EGI.eu provides coordination of incident response activities.
- **Security Training:** Participating in a global infrastructure is still not a very common task for some resource centres. Unless specific efforts are made to ensure communication on incidents is effective between all EGI participants, the 'weakest link' principle applies and the integrity of the entire infrastructure can inadvertently be put at risk by a single user or resource. The use of 'security drills', exercising the incident response communications channels, has proven particularly effective in ensuring open and effective exchange of information.

Assessment: Security operations coordination was run effectively. Monthly meetings were organised involving NGI partners. The security threat risk assessment report was finalised, and a new policy for



the retirement of unsupported software deployed in the production infrastructure was approved. Security operations coordination actively participated to software decommissioning campaigns and to their oversight. EGI CSIRT got accredited with TRUSTED Introducer.

The Security Policy Group (SPG) function leads the development and maintenance of security policies for use by EGI, NGIs and where possible by collaborating Resource Infrastructures. Other activities include liaising with other bodies on the policy issues related to Federated Identity Management and Security operations between collaborating infrastructures. SPG meetings were chaired, policy documents were produced and updated and important new documents on Federated Identity Management for Research and Security for Collaborating Infrastructures were both published. All of this was performed within the allocated effort budget and no major issues have arisen.

EGI also continues to have a significant impact on the development of policy and technical interoperability, developing policies ensuring interoperability with peer infrastructures and user communities. For example, the authentication policy profiles in the IGTF have been more closely aligned with the industry standard identity assurance levels defined by the Kantara Initiative, as several university systems in Europe have aligned their (student) registration systems to these assurance levels. EGI has also taken a leading role in coordinating the technical migration policy for the cryptographic methods used to secure the identity management infrastructure, together with PRACE and the US Open Science Grid and XSEDE infrastructures. All relevant technical documents have also been put forward in the standardization process of OGF through the CAOPS Working Group.

Within the changing identity management landscape, the objectives of the external security liaison function have been met without major issues and within the effort foreseen for the activity. The continued evolution of identity management - both due to changing end-user expectation and because of new technologies becoming available to the infrastructure - will require continuous updates to the (technical) policies governing global trust interoperability. We expect the required effort to fit within the envelope set for this activity and IGTF security liaison tasks.

Security incident response coordination relies on the availability of experts (currently contributing on a voluntary basis to on-duty activities) that assist grid administrators with the handling of the incident that are basis. Currently only a minority of the NGIs retain the expertise needed to participate to this activity and because of personnel turnover securing contribution to this activity proved to be difficult. It is recommended that the whole incident response evolves from an unfunded activity into an EGI Global Task activity supported by EGI.eu.

Security drills were implemented in collaboration with various user communities (ATLAS and CMS) both at EGI level and NCI level to assess readiness and awareness of procedures and communication channels. EGI drills were implemented to be re-used at a site or national level, where they serve as trainings in computer security forensics and identification of intrusion and threats. The drills needed development (mainly contributed) and periodic use in realistic tests (the coordination function included here). Multiple training events for Resource Centre operators and security officers were provided.

Score: 5

3 CONSULTING AND SUPPORT

3.1 Strategy and Policy Decision Support

Description: The wider e-Infrastructure community, whether directly or indirectly involved with EGI, benefits from informed decisions being taken. A range of actors relies on insight and data to support both strategic and tactical decision-making. This includes EGI management trying to make informed decisions, a site administrator looking to understand the impact of developments on the infrastructure, technology providers looking for new opportunities, and project managers reviewing product roadmaps. All levels of the EGI ecosystem and partners trust EGI.eu to better understand the environment in which they operate. This service is therefore dedicated to the development of strategies and policies within and external to EGI.eu in conjunction with EGI's stakeholders including EGI's strategic response and alignment to EU policy and EC initiatives, such as EU2020, the Digital Agenda and the digital European Research Area.

Supporting Activities:

- Reports and Briefing Documents: The main objective is to analyse strategic themes and trends globally and in Europe and produce documents and reports to inform the EGI management bodies and wider community to support the decision-making process and articulate an evolving landscape for the benefit of the wider community.

Assessment: Moving into the second year of the re-structured service, the Strategy and Policy Team (SPT) has worked on improving the communication of messages coming from policy and strategy analysis, by limiting and maximising the use of surveys, increasing the use of social media and improving the structure and focus of the reports sent to the EGI Council. This has reduced the size and complexity of the reports and explicitly outlined the points needed for decision, therefore increasing the clarity and effectiveness of the policy. Policy changes and strategic evolution have continued to follow the guiding principles of openness, transparency and consensus. This has been done by holding sessions at EGI's major events as well as a dedicated workshop in January 2013 to present ongoing work and the potential changes in order to gather feedback from key personnel across the community on a wide range of issues (e.g. federated resource allocation, pay-for-use, service evolution beyond EGI-InSPIRE). The SPT has continued to produce strategic reports on topics such as business models, sustainability, the EGI2020 strategic plan, and the ERIC legal framework. One of the last parts of EGI's efforts is to increase the transparency of activities, support the strategic planning and long-term development of EGI is by providing an essential body of information for the various EGI stakeholders. This has taken form through the publication of the first edition of the EGI Compendium and the work in establishing the EGI balanced scorecard.

The team located at EGI.eu headquarters and external partners have worked well over the last year and have strived to improve the way messaging is delivered and activities are carried out. Over the next year, focus will need to be given on EGI's sustainability strategy as EGI-InSPIRE moves into its final project year. More emphasis will also need to be put on establishing key partnerships with technology and resource providers as well as new emerging communities.



Score: 4

3.2 Policy Development

Description: Policies are needed to govern the provision of a high-quality distributed-computing production-oriented infrastructure. EGI.eu, the coordinating body for the EGI community, provides management of policy groups for developing and approving policies relating to operations, software quality, security, user communities and general governance. The development of these policies is coordinated and supported, which may have relevance and impact with other European and International e-Infrastructure providers, therefore, liaison with external groups and organisations is essential as well.

Supporting Activities:

- **Policy Development Process Management:** From concept to implementation, the formulation of policies and procedures through EGI policy groups needs to be led, developed and supported. This includes work with resource providers for potential policy integration or modification and liaison with groups for specific policies that need to be established or modified for providing services or integrating services. EC policy also needs to be followed in order to ensure policies are inline with ongoing and future developments (e.g. EU2020).
- **Liaison with external policy bodies:** EGI.eu partners work together with several international policy bodies to establish relationships for European and International policy development. This includes, but not limited to, DG CONNECT through their events (e.g. e-Concertation), the e-Infrastructure Reflection Group (e-IRG), or the Open Grid Forum (OGF).
- **Secretariat Support to Policy Groups:** Dedicated support for the formulation and development of policies and procedures through secretariat services facilitates the policy process for the policy groups within EGI. This activity allows for articulation and consistent recording of decision-making and agreed actions in support of developing policies across EGI.

Assessment: The approval of policy and procedures has been handled on time and with no difficulties. The EGI policy groups have continued to meet consistently through regular phone conferences and face-to-face meetings at EGI events. All meetings have been recorded through formal minute taking. External relations with policy groups have progressed by attending key events such as the e-IRG workshops (with contribution to their blue paper on data management), e-Concertation meeting, or Cloudscape. A number of key surveys have been filled and provided ensuring the EGI position being provided.

EGI policy groups have continued to meet consistently through regular phone conferences and face-to-face meetings at EGI events. All meetings and have been recorded through formal minute taking. External relations with policy groups have progressed in areas such as integrating identity management systems, building a standard framework for security policy and trust for interoperability security with collaborating activities (EGI, WLCG, OSG, PRACE, EUDAT, CHAIN and XSEDE) and contributing to e-IRG blue paper on data management.

Score: 4



3.3 Technical Consultancy and Support

Description: EGI's main objective is to support world-class research across Europe and beyond. In order to reach out new user communities while maintaining current ones, consultancy and support on how a user can engage and profit the most from EGI resources is an essential service. Consultancy is provided through a number of channels such as offering technical advice for the best solution, helping get applications up and running, providing support mechanisms such as an applications database to leverage work in similar areas and general user support. A dedicated user community board is also available for participation to feed requirements and share experiences between different communities. These requirements are then prioritised and pragmatically fed into technical developments for implementing or improving services.

Supporting Activities:

- **User Community Coordination:** EGI supports a wide range of user communities that cover a multitude of scientific disciplines. Coordination of these communities is a key activity of that support. This is mainly done through the User Community Board that offers a forum whereby representatives from self-organised virtual research communities (VRCs) meet to review and agree on the prioritisation of the emerging requirements for their use of EGI resources on a regular basis. The VRC model encourages researchers to identify and communicate with others in their field in order to capture the needs particular to their field of expertise and articulate them to EGI.
- **Requirements Gathering and Analysis:** In order to consistently improve the infrastructure and ensure that the services being offered meet the needs of the researchers, requirements need to be gathered, analysed and prioritised to define functional and non-functional changes that users and user communities (e.g. VRCs) would like to see in EGI services. To do this, requirements enter the EGI Requirements tracker within a transparent and structured process. Depending on the scope of the requirement and potential impact, different teams are brought together to provide a solution.
- **Technical Solutions Consultancy:** Dedicated consultancy is provided through several channels that help researchers find the best solution. Available tools comprise the EGI Applications Database, the EGI Helpdesk and project-specific User Support Teams. As new technologies emerge, these will also be part of the technical solutions portfolio that is provided to the EGI community.
- **Coordination of Application Porting:** The EGI.eu Technical Outreach Team coordinates experts within the EGI community from NGIs or partner projects to provide application porting support for getting an application up and running on the infrastructure, which can be a time consuming task.

Assessment: During the last twelve months the EGI.eu team has made good progress with Technical Consultancy and Support Activities. The efficiency of consultancy and its coordination increased since the task review because 1) workflow systems, workflows and science gateway solutions have been gathered from the community and have been made visible in the AppDB and on the EGI Website; 2) the requirement gathering and analysis process has matured and has been used as an 'operational



process'; 3) various Virtual Team projects have been run that have contributed to the technical consultancy area (for example Science Gateway primer).

The Technical Consultancy and Support works as a stable service and delivers results through the NGI and community/technology specific teams who do the actual application integration. This is visible from the statistics on the use of the EGI Applications Database, which indicates 40 new software registration since May 2012.

The service could be improved by bringing the consultancy on 'operational tools for community services' under the same umbrella. These tools could help the developers and operators of community services (e.g. portals, workflow frameworks) increase the availability and reliability of their services (EGI SAM), and also better understand the users' behaviours (EGI Accounting). Building up expertise on these tools has already started.

Score: 4

3.4 Helpdesk Support

Description: EGI.eu coordinates and supervises user and operations support activities provided by the individual NGIs to ensure that operational issues are properly handled at both Resource Centre and NGI level. This service includes the following activities.

Supporting Activities:

- Incident Management Tool (EGI Helpdesk). EGI provides support to users and operators through a distributed helpdesk with central coordination (GGUS). The central helpdesk provides a single interface for support. The central system is interfaced to a variety of other ticketing systems at the NGI level in order to allow a bi-directional exchange of tickets (for example, those opened locally can be passed to the central instance or other areas, while user and operational problem tickets can be open centrally and subsequently routed to the NGI local support infrastructures).
- 1st Level Support and 2nd Level Support. Software-related tickets are further analysed for potential forwarding to 3rd line support units only when there are clear indications of a defect (in software, documentation, etc.). ETAs for high-priority and very urgent tickets will be determined in conjunction with the respective 3rd level support unit. The involved partners provide a pool of experts available for deep analysis and solving the reported issues. This function includes the production of HOWTOs and document known issues of deployed software, and collaboration with operations in case of critical incidents.
- 3rd Level Support. This activity is currently provided by the Technology Providers who have an established partnership with EGI.
- Ticket oversight and follow-up. This activity includes the administrative and reporting functions of the helpdesk infrastructure, e.g. collecting ticket statistics, and internal and external reporting of statistics for SLAs monitoring and other reporting duties. Ticket follow-up includes notifying supporters when the reaction to high-priority tickets is not fast enough, and requesting information from ticket submitters when they do not react. Ensuring assigners/resolvers will react sufficiently fast when the submitter provides additional



information.

- Ticket triage and assignment. Ticket triage requires a rota structure to make sure that a service is provided during regular business days. The assigner is responsible for initial analysis of the incoming ticket, requesting additional information from the submitter, and then either delivering a solution or assigning the ticket to a particular expert to resolve, or to NGIs in case of operational incidents.
- Network Support (see Network monitoring and support in section “Operations Coordination”)

Assessment: Software support activities were streamlined and restructured at the beginning of PY2 and have been effectively running during this project year. The EGI helpdesk has been consolidated in the past year and was rated by NGI operations managers as the top- priority service. One of the major development tasks during PY3 was the redesign of the report generator: all metrics reports which used to be created manually and made available for download from the GGUS website can now be created on demand. The high availability solution was consolidated through the implementation of a high availability solution for web front-ends and the logic servers, the implementation of an on-call duty service integration and of an intrusion prevention system. Operationally, the service deployment was changed to a highly available configuration.

1st and 2nd level support was strengthened in PY3 by streamlining the internal organisation of the activities and by providing support to new technical areas. Supporters successfully cooperated with the EGI technology providers for the discussion of technical issues around software deployment. The supporters ensured daily support in GGUS to users and operators.

EMI, the major software provider for EGI, is not going to continue as a single formal project. As of April 2013, the software will be supported by the community on a best-effort basis. This may increase the risk of delayed response on software issues critical to EGI, which will mean more effort being required at the EGI side. In particular, the scenario of 2nd level software support in EGI producing patched software when Technology Providers fail to deliver a fix, becomes more likely.

Ticket oversight and follow-up is a new activity which was established in PY3 to ensure that incident record submitters provide the needed information to address the incident, effectively interact with technical supporters, and to ensure that incident records are properly handled by the internal support structures in the helpdesk. This activity was responsible of defining new ticket workflows in case of lack of responsiveness of submitters and supporters in order to automate processes.

Gathering and evaluating Technology Provider performance metrics and monitoring SLAs may become less important in a scenario where 3rd level support is provided totally or partially on a best-effort basis by Technology Providers. On the contrary, the actual follow-up of the tickets (ensuring they are not forgotten by supporters etc.) remains important or even increases priority as a way to solicit feedback while meeting the same expectations of the users.

The current work in ticket triage and assignment has stabilised with sufficient number of people to run the rotating service, so no major changes are foreseen. It ensures an effective handling of incident records.

For network support see Network monitoring and support in section “Operations Coordination”.

Score: 5

4 MARKETING AND OUTREACH

4.1 Marketing Services

Description: EGI.eu, on behalf of the European NGIs and projects, and other international partners coordinates marketing services for the benefit of the wider community. The aim is to communicate the work of the EGI and its user communities and target audiences for the dissemination outputs to new and existing user communities, journalists, general public, grid research and standards communities, resource providers, collaborating projects, decision makers and governmental representatives. Means for communication and marketing include the project website, wiki site, materials and publications, media and public relations, social media channels and attendance at events in order to market EGI to new users.

Supporting Activities:

- Promotional Material: Production of brochures, leaflets, posters and all printed materials, from initial concept design, to content writing, layout and printing. Promotional material is not limited to EGI.eu as an organisation but is often in promotional of research communities and national infrastructures.
- Copywriting: Professional science writers offer copywriting services for press releases, promotional materials and articles for the trade and general press. They cover use cases and success stories across the community.
- Web Content – Production and maintenance of the EGI flagship website, which includes web content, navigation and design.
- Events: EGI two main events, the Community and Technical Forums, provide high marketing visibility for all areas of EGI and scientific communities. Support is given to the local organisers regarding all promotional materials, web banners, and liaison with media sponsors. Organisation of EGI presence at other events in the user community including booths, presentations and papers is also provided.

Assessment: Planning for participation at events is now more coordinated and focussed on 5 key target communities: life sciences, environmental sciences, digital cultural humanities, earth sciences and hydrometeorology, and takes advantage of the contacts established by the user community support team. These activities are now described in an Outreach Strategy, which complements the Communications Strategy [R8]. This means that we are leveraging our attendance at meetings more effectively, for example by involving local NGIs in running booths, by gathering targeted case studies from the community to display at scientific events e.g. the EGU General Assembly, the European Biophysics Congress with presentations being given by high profile users of the infrastructure at these events.

Our presence at events has continued to be coupled with our outreach through social media. Members of the user community and policy teams have attended events in order to network, and have combined this with blogging for the EGI blog, and also the GridCast blog run by the e-ScienceTalk project. Articles based on these blogs by EGI staff have been published through



International Science Grid This Week, which has 8700 subscribers and is regularly retweeted through the CERN Twitter account, which has over 735,000 followers. These activities have helped us to target the science community and potential users of the infrastructure.

Media partnerships have been established for our two major annual events with iSGTW, GridCast and Tabor Communications, which includes HPCwire, HPC in the Cloud and Datanami in its list of publications. The editor of HPC in the Cloud attended the EGI Technical Forum in Prague, leading to several articles in Tabor publications, which were further picked up by other trade journals, helping us to publicise our activities to an industry audience.

Targeting of the general public has been done through social media and the collaboration with e-ScienceTalk, which hosts an e-ScienceCity website aimed at introducing e-Infrastructures and e-science to a general public audience. The 2D website contains many references to EGI, and there is also a 3D virtual e-ScienceCity hosted in the NewWorldGrid virtual world, which is a growing open source alternative to SecondLife. A writing competition was launched in collaboration with iSGTW, with categories for researchers and general science writers to describe the contributions of grid computing to eScience. While the number of entries was not sufficient to enable us to put together a winners short list, the writers have been asked to submit their articles to the EGI website and iSGTW for publication. A video based on research into comets in Serbia has been produced, bringing the total number of EGI promotional videos to four, demonstrating the impact and added value of the grid for research through the YouTube channel and at events.

The website continues to evolve in its new format, with added sections on services and federated clouds. The news feed is active and all promotional materials are included on the website for download. There is also an area on the website dedicated to the EGI Champions, who are promoting grass roots support for EGI among the user communities. The profiles of the EGI Champions feature online. The EGI Inspired newsletter has been redesigned and relaunched in a new email format, rather than PDF, which provides direct links to the articles on the website for subscribers. A bulletin aimed at the National International Liaisons (NILs) is also issued once a month, based on feedback from the NILs at the EGI Technical Forum in Prague.

Score: 3

The marketing service was externally assessed by the NGIs, which was gathered as part of the NGI International Task Review (MS124). Seven NGIs provided their feedback offering their individual assessments, both internally and as an external services, and with areas for improvement.

Most NGIs noticed the improvement to the website. Two NGIs stated that most marketing objectives are in fact met by online presence (Romania) or as some new users are reaching out through the public web pages and wiki (Portugal). Two NGIs felt that the marketing activities are not well known on the local level (Georgia) or are not in the scientific user communities (Germany). The EGI Champion scheme was also mentioned as a potentially important mechanism but was too early for an assessment.

On an individual perspective, the French NGI stated that local marketing activities would be improved with a new member of staff. The Portuguese NGI delivered marketing activities through



seminars meetings, namely the ones organised by the NREN and by the Portuguese and Spanish NGI. Suggested areas of improvement were in making more visible the activities of the EGI Champions and marketing activities within the NGIs through dedicated newsletter similar to the one used for NILs communication, but dedicated to marketing. News is still felt to be sparse in many areas. However, NGIs should continue to be present at the major national scientific and technical meetings, and to improve the offer of HPC resources according to local demand and promote HPC access via grid. This was confirmed by another NGI who mentioned that the main interest of new communities is focused much more on High Performance Computing rather than in Grid Computing. As for beyond EGI-InSPIRE, many NGIs said that marketing services would continue at least on a national/regional basis, with broader activities being carried out on a best effort basis.

4.2 Outreach Services

Description: Outreach services are designed to engage potential new users and to continuously interact with current users. Both personal contact and wide-scale outreach allows for EGI to maximise the user experience. A number of means are deployed to ensure the largest number of researchers is able to take advantage of the benefits that EGI offers. This includes dedicated experts on a local level through EGI Champions, the organisation of two flagship events per year (Community and Technical Forums) attracting researchers are a wide-scale as well as smaller topical workshop. EGI also develops strategic relationships with organisations, projects, user communities and resource and technology providers through collaboration agreements. Tools are also provided to EGI partners to help manage contacts through a client relationship management system.

Supporting Activities:

- **Event Organisation:** EGI organises broad community events as well as smaller topic targeted events and workshops, with the goal of bringing members of the EGI ecosystem together. These events are vital to enable collaborations within the community and to provide an opportunity to show case successful use cases.
- **Local EGI Champion Coordination:** The EGI Champion's scheme creates a nucleus of knowledge and highly motivated EGI users. The champions' mission is to actively encourage and enthuse more scientists into using EGI resources for their research.
- **Collaboration Agreements:** EGI.eu has signed a number of collaboration agreements with technology providers, resource infrastructure providers, virtual research communities, policy standards bodies and projects, such as regional projects, policy projects and other infrastructures. These agreements include milestones for ensuring results that bring mutual benefit for the collaborating parties. The collaboration activities are reported annually through milestone reports.
- **Client Relationship Management System:** The CRM is an online interface providing capabilities to record leads to new communities, which should be contacted/interviewed to build a global understanding of the needs of new communities.



Assessment: The intensity and support for Outreach activity in EGI has increased during the last year. This was supported by the CRM system, the EGI Champions programme, and VT projects that were active in the Outreach area. The CRM was opened for EGI.eu, NILs and their partners in March 2012, then continuously extended based on the users' feedback. VT projects such as the 'VT ESFRI Contact List', 'Fire Simulation', 'Collaboration between EGI/NILs and large ESFRI project ELIXIR' helped EGI reach new communities. Recently started VT projects – such as the 'Towards a Chemistry, Molecular & Materials Science and Technology Virtual Research Community' and 'Technology study for CTA (Cherenkov Telescope Array)' will help EGI continue and even increase activities in this area.

Although many elements of the outreach activity works routinely by now (e.g. collaboration agreements, event organisation), there is still need to stronger communication between the NIL and EGI.eu groups who are involved in outreach, and between the different EGI.eu groups who are specialised on different levels of outreach (e.g. hosting a booth at an event vs. Technical consultancy for potential users). The CRM system can support the integration of activities in both dimensions, therefore its use should increase in the next period both in EGI.eu and in the NILs. The CRM training at the EGI Community Forum will help us in this.

Score: 4

5 SOFTWARE SERVICES AND PLATFORMS

5.1 Repository of Validated Software

Description: EGI releases the Unified Middleware Distribution (UMD), which is a subset of the software releases from Technology Providers. Software is released in UMD only once it has been verified as compliant to established EGI quality requirements and tested in a production environment. The products qualified as part of UMD are distributed through central UMD repositories. Site managers and in general service managers, can configure a single set of repositories and find information, such as release notes, for all the products in UMD in a single entry point, without the need to browse multiple technology providers sources, and be sure that what is released in these repositories has passed the additional EGI quality assurance process.

Supporting Activities:

- **Software Provisioning Infrastructure:** The UMD software provisioning system is the infrastructure used to manage the releases and the software repositories with a consistent and automated workflow. The repositories are available for multiple package formats. The release workflow is tightly coupled with other EGI IT services such as the Requirements Tracker ticketing system and EGI Single Sign-On.
- **Software Acceptance Criteria:** This activity maintains the quality criteria document that is updated every six months. The document defines the criteria that must be checked during software verification. A component that does not fulfil the critical quality criteria cannot be released in UMD. Examples of requirements topics are: security, documentation, usability and conformity to standards.
- **Verification of Acceptance Criteria:** Once a new product release is submitted to UMD, they are verified against the criteria defined in the quality criteria document. The verification is performed by expert verifiers by deploying test instances of the services in a private cloud infrastructure.
- **Staged Rollout:** The last stage of the verification is performed in a production environment. Before being distributed in UMD and widespread deployment, new products are deployed by expert site managers in selected resource centres. Exposing a limited number of installations of the new products to real users, allows to spot software bugs and other issues, reducing the probability of releasing defected products in UMD.

Assessment: The software provisioning activities have been carried out without major issues. In the second part of the year, the UMD releases have been regularised to a three-months schedule, this reduced the effort overhead required for every new release. Emergency releases have been produced within the time constraints requested by the EGI Security team, making available the critical patches to the infrastructure.

The SA2 team worked in close collaboration, weekly phone meeting have been used to discuss about issues and plan the future activities, plus one face-to-face ad hoc meeting in Amsterdam. Staged rollout in some rare cases has been delayed because of unresponsive or unavailable early adopters,

who are providing their contribution as volunteers. Staged rollout coordination worked to have all the important updates tested in staged rollout before the scheduled UMD release.

Regarding staged rollout, versions can be safely deployed without disrupting the production infrastructure. This is needed to complete Product Team certification activities by exposing services to different deployment scenarios. EGI-InSPIRE supports the coordination of this task at a European and NGI level, however this activity mostly relies on unfunded effort contributed by expert Resource Centres administrators (64 Resource Centres to date) to undertake the actual work.

Staged Rollout established itself as one of the most important operations EGI Global Tasks for software change management and quality control. The current level was – increased in PY2 to 12 PM/year – proved to scale with the number of products and supported platforms, which increased significantly during PY2. The coordination role requires liaison with the Technology Providers, the Early Adopters and the managers of the UMD distribution. It is recommended that the current level of effort is maintained.

The software provisioning services have been delivered without major issues or interruptions. UMD received all the high priority updates within the schedule timeline. Minor dependencies issues have been introduced by updates released in the operating system community repositories. The processes around UMD will need to be more robust once the coordination work of the technology providers reduces.

The UMD documentation currently scattered between UMD verification and staged rollout reports, technology providers release notes and products documentation, has been identified as an area needing improvement.

Score: 4

5.2 Applications Database

Description: The EGI Applications Database [R9] (AppDB) is a centralised service that stores and provides information to EGI members, and to the general public about:

- Tailor-made scientific applications that are integrated with the EGI production infrastructure, or with some EGI partner infrastructure (for example with a desktop grid).
- Software tools, components and frameworks that application developers can use to integrate new scientific models and applications with the EGI production infrastructure, or with some EGI partner infrastructure.
- Publications about the aforementioned scientific application and software items.
- Programmers and scientists, who develop, drive the development and/or provide user support about the above software.

The AppDB facilitates the reuse of scientific software and software developer tools. By choosing a proven, off-the-shelf solution from AppDB scientists and scientific programmers can save time when using scientific applications at a large scale, or when porting software to EGI. The AppDB helps the community find synergies across multiple groups, and help us avoid duplicated software developments. Among other community features the AppDB provides rating and commenting



services for the registered items, and web gadgets and API for integration with third party websites and services.

Assessment: The functionality has gradually and significantly evolved during the last year, with many new releases with expanded support and information for users. For example the Database was extended with support for 'Science gateways' and 'Workflow systems' as content type. The monitoring of the system has been changed from Google Analytics to Piwik, which is capable of capturing all traffic on both the central AppDB Portal as well as its numerous gadget instances used in NGI and community websites.

The AppDB became a crucial service to capture activities and results in the software development areas. During the last year there was a stable increase in both the absolute use of the system (40 new software releases since May 2012), and in the web visits (6501→6388→7249 in PQ9-10-11). The AppDB currently hosts more than 465 entries comprising 380 applications, 50 science gateways, 70 tools and 26 workflows. In early 2013, the AppDB was expanded with support for 'Community Technology Providers', a specific type of middleware developer team who will become part of EGI after April 2013. The AppDB will be extended with Virtual Machine management support later during 2013. These developments will make the system relevant for new types of users: Integrators of various types of Community Platforms. The extension will further increase the use and the criticality of AppDB in EGI. The developer team at IASA contributed with a huge unfunded effort to the further development of the system during the last year, and promptly responded to all request coming from EGI.eu and the community.

Score: 5

5.3 Training Marketplace

Description: The Training Marketplace is an online registry to advertise and to view (browse and search) training events, online training materials, training resources and university courses that are related to EGI. The service supports cooperation between trainers and trainees in different localities and projects by connecting the groups through the stored items that are advertised in the Training Marketplace. The Training Marketplace is typically used together with the EGI Document Database, and indexes files (training presentations, tutorial documents, etc.) from the Document Database. The Training Marketplace provides rating and commenting facilities the registered items, and web gadgets for integration with third party websites.

Assessment: After the intensive further development of the Training Marketplace in its first year of existence, the service reached its current form. The item categories that were not used at all have been removed as part of this finalisation process. The remaining categories have been extended with features that increase system usability, for example permalinks to some of the item categories, larger variety of gadgets (5 at the moment).

The service improved according to plans, however recent statistics (presented at Evolving EGI



Workshop) indicate that the event registration part of the Marketplace is heavily used, while other parts are used moderately (i.e. 150 of 175 items registered are training events). The team works on new gadgets that would allow a more flexible and custom-tailored use of the Marketplace by projects, such as Research Infrastructure and ESFRI cluster projects. The gadgets will be released before the EGI Community Forum, and will hopefully increase the use of the Marketplace and reach a more balanced use across the training-related items that the system stores. Although STFC contributes with unfunded effort to the development, the team's responsiveness to EGI.eu requests could be increased (e.g. evaluation of feature requests, input to bi-weekly and quarterly reports).

Score: 4



6 CORE GRID SERVICES

This Core Grid Service includes the core technical grid services and technical tools that support EGI's daily operations. The maintenance and development of these is currently supported by EGI-InSPIRE JRA1. Maintenance is an EGI Global Task, while innovation within EGI-InSPIRE is classed as a General Task.

6.1 *Accounting Portal and Repository*

Description: The EGI Accounting Infrastructure is distributed. At a central level it includes the repositories for the persistent storage of usage records, and a portal for the visualisation of accounting information. The central databases are populated through individual usage records published by the Resource Centres, or through the publication of summarised usage records. The Accounting Infrastructure is essential in a service-oriented business model to record usage information. Accounting data needs to be validated and regularly published centrally.

Assessment: The APEL Accounting Repository and Portal were kept working reliably throughout 2012 (i.e. 95%-100%). The APEL Accounting Repository was taken out of service in February when the servers were all upgraded to Scientific Linux 5. The new SSM (Secure Stomp Messenger) based APEL Accounting Repository was brought into service in June, 2012.

The accounting repository has been undergoing a number of changes in terms of formatting of user DN information, structure of the usage record, protocols for consuming accounting data, and types of resources being handled. The accounting repository will be used for accounting of storage and virtual machines of the EGI Federated Cloud infrastructure, and accounting of data usage is progress.

Score: 4

6.2 *Catch-all Grid Services for small user communities*

Description: Auxiliary core services are needed for the good running of Infrastructure Services. Examples of such services are VOMS service and VO membership management for infrastructural VOs (DTEAM, OPS), the provisioning of middleware services needed by the monitoring infrastructure (e.g. top-BDII and WMS), and the catch-all CA.

OPS and DTEAM are the two Virtual Organisations allowing monitoring and troubleshooting of the infrastructure. These require technical support services and human resources for daily VO membership management. A Catch All CA needs to be available to any user community within the EGI. Currently, most of the countries participating in the EGI have or are in the process of creating their own Certification Authorities. Yet, there are still a number of countries that are late to this process and their user communities depend on the existence of a catch all CA to issue certificates to them. Functional community services for small and/or emerging user communities in order to reduce the overhead for the user. This activity currently also includes community services like VOMS, MyProxy, LFC, WMS and LB and top-level BDII for small user communities.



Assessment: These services have been delivered reliability throughout PY3.

Score: 4

6.3 Development of operations monitoring probes

Description: EGI.eu is responsible of the development of operations specific tests to be integrated into the Service Availability Monitoring System.

Assessment: This activity – started in PY3 – was fundamental to support the automation of follow-up procedures in case of Resource Centre OLA violations and to support the retirement campaigns of unsupported software (gLite 3.1, gLite 3.2, ARC, and EMI 1 at the end of PY3).

Score: 4

6.4 GOCDB

Description: EGI relies on a central registry (GOCDB) to record information about different entities such as the Operations Centres, the Resource Centres, service endpoints and the contact information and roles of people responsible of operations at different levels. GOCDB is a source of information for many other operational tools, such as the broadcast tool, the Aggregated Topology Provider, the Accounting Portal, etc.

Assessment: GOCDB provided a reliable service throughout PY3 scoring 100% availability. Nevertheless the high availability configuration requires consolidation in PY4. The failover instance is hosted at Fraunhofer Institute and monitored by STFC Nagios. A number of downtimes throughout the year exposed weaknesses with the failover which have largely been addressed. Automatic DNS switching to dynamically re-point the 'goc.egi.eu' domain to either the central instance or failover still needs to be investigated. GOCDB v4.4 is the current production release. This version harmonised the separate read-only and read/write instances into a single portal. Version 4.4 has addressed many small RT requirements for GUI enhancements.

Score: 5

6.5 Incident Management Tool (EGI Helpdesk)

See section 3.4.

6.6 *Message Broker Network*

Description: The message broker network is a fundamental part of the operations infrastructure ensuring message exchange for monitoring, the operations dashboard and accounting. As such it is a critical infrastructure component whose continuity and high availability configuration must be ensured. It includes a network of production brokers, currently operated at AUTH, CERN and SRCE, and a test instance of the infrastructure.

Assessment: Message brokers are necessary for monitoring, accounting and infrastructure oversight and this service should be considered an EGI Global Task. A high availability and distributed network of brokers is needed to ensure redundancy. The message broker network is now a stable production system. Given the improved stability and reduced number of upgrades that are now needed, the funding can be reduced. The message broker infrastructure delivered 100% availability during PY3. Currently the broker network is consisted of 4 message brokers in Greece (GRNET/AUTH), Croatia (SRCE) and Switzerland (CERN) and it is used by EGI operational tools infrastructures (i.e. the SAM infrastructure for the distribution of monitoring results). The authenticated connection on the production broker endpoints was enabled for SAM and failover resiliency of broker endpoints has been tested to work. The foreseen evolution regarding the production EGI message broker network and in relation to the SAM activities involves: implementation of authenticated connections to the broker network and the implementation of a failover capability with respect to the delivery of results from SAM probes.

Score: 5

6.7 *Metrics Portal*

Description: The Metrics Portal is the tool for the registration of EGI-InSPIRE metrics. It displays a set of metrics that will be used to monitor the performance of the infrastructure and the project, and to track their changes over time. The portal automatically collects all the required data and calculates these metrics before displaying them in the portal. The portal aggregates information from different sources such as GOCDB, GGUS, etc.

Assessment: The tool was run reliably throughout PY3 and was constantly improved to meet the project requirements. The Metrics Portal has been used for the last year to gather metrics from the project tasks. The metrics portal in the PQ9 quarter has been expanded with new metrics for the SA2, NA2, SA1 and NA3 tasks. Some of these metrics needed to be available only from a specific quarter, or superseded the semantics of previous metrics, so new functionality to make metrics accessible depending on several variables was implemented. These metrics will also promote the development of connectors for next information source.

Score: 4



6.8 Operational Tools and Meta-service Monitoring (Ops-Monitor)

Description: A centralised SAM installation is currently running in production to monitor the performance of EGI.eu operations tools (Accounting Portal, central Accounting Repository, Operations Portal, GOCDB, GStat, Metrics Portal, the message broker network and SAM) and user community support tools (GGUS, Application Database and CRM). Availability and reliability reports for these services are now publicly available on the MyEGI central instance.

Assessment: The SAM instance for the monitoring of the EGI.eu technical services was brought into production in November 2012. Test results are fundamental for service level reporting of the EGI.eu tools to check the quality of service delivered in relation with the EGI.eu Operational Level Agreement.

Score: 5

6.9 Operations Portal

Description: EGI.eu provides a central portal for the operations community that offers a bundle of different capabilities, such as the broadcast tool, VO management facilities, a security dashboard and an operations dashboard that is used to display information about failing monitoring probes and to open tickets to the Resource Centres affected. The dashboard also supports the central grid oversight activities. It is fully interfaced with the EGI Helpdesk and the monitoring system through messaging. It is a critical component as it is used by all EGI Operations Centres to provide support to the respective Resource Centres. The Operations Portal provides tools supporting the daily running of operations of the entire infrastructure: grid oversight, security operations, VO management, broadcast, availability reporting.

Assessment: The service provided a highly reliable service in PY3 and underwent a large number of software upgrades. Nevertheless, given the criticality of the tool, its centralised nature, and the new number of different modules provided, a high availability configuration must be ensured. Operation of the system includes support of the central instance running of a test instance and requirements collection. A campaign has been launched by the EGI Operations team to detect obsolete version of the middleware components. The security dashboards and the operations dashboards were modified consequently to expose the alarms raised in such cases. This module has been designed to compute and expose the availabilities and reliabilities of the TOP-BDII of a NGI. This will be evolved into a NGI availability and reliability dashboard. A similar module was developed to expose availabilities and reliabilities for the sites. The concept is the same except that we build a list of sites per NGI from the GOC DB programmatic interface. Different improvements have been made for the dashboards. A new dashboard has been designed dedicated to VO Operations. And more generally an important refactoring has been initiated to improve performances and usability.

Score: 5



6.10 Security monitoring tools

Description: EGI is an interconnected federation where a single vulnerable place may have a huge impact on the whole infrastructure. In order to recognise the risks and to address potential vulnerabilities in a timely manner, the EGI Security Monitoring provides an oversight of the infrastructure from the security standpoint. Also, sites connected to EGI differ significantly in the level of security and detecting weaknesses exposed by the sites allows the EGI security operations to contact the sites before the issue leads to an incident. Information produced by security monitoring is also important during assessment of new risks and vulnerabilities since it enables to identify the scope and impact of a potential security incident. The whole activity needs to be closely linked to other security-related tasks, namely the Incident Response Task Force and SVG and provide reliable and quick support to them (for instance to introduce new checks or process collected data). The task needs to cooperate with other activities responsible for general EGI monitoring and will need to coordinate their developments among these activities. Additional connections need to be maintained to the operations dashboard and common activities doing support to sites to make sure detected security issues are handled properly.

Assessment: Currently EGI CSIRT runs two services implementing security monitoring, the security Nagios box and Pakiti service to monitor patch management, which provide a security-related overview of the infrastructure. Within the scope of EGI-InSPIRE we plan increase the coverage of EGI (so-call site-wide monitoring), start producing metrics summarising level of security as seen by EGI CSIRT, improve the handling of the issues detected (sending notifications, close integration with ticketing systems), and finish the next generation of Pakiti server monitoring security patches.

Score: 4

6.11 Service Availability Monitoring (SAM) central service

Description: Central systems are needed for the archiving of infrastructure performance figures, the generation of service level reports, and for the central monitoring of EGI.eu operational tools and other central monitoring needs.

The SAM database components are: the Aggregated Topology Provider (ATP), the Profile Management Database (POEM) and the Metric Result Store (MRS). The ATP is currently running in a distributed setting on all the regional instances and synchronises from multiple source including GOCD, GStat, BDII and VO feeds. In addition, it provides a Web based interface for browsing the synchronised data stored in the database. POEM describes existing metrics and groups them in order to run tests. In addition it defines actions that can either configure the way the availability and reliability is computed or allow notifications to messaging system. The Metric Result Store (MRS) is currently running in production on all regional instances. It supports computation of service statuses on the regional instances. The central instance aggregates data from NGI instances and provides status of the services.



Assessment: The central SAM infrastructure was regularly updated following the SAM update release schedule, and new important functionality was delivered to operators in PY3, link the possibility to consult on-line availability reports, customise availability reports, the profile management system and a number of extensions to the graphical user interfaces. The visualisation portal of the central monitoring service has been improved and is currently providing the following views: Metric Status, Availability and Reliability, Treemap, and Topology description.

Score: 5

6.12 Tools (Grid Services) for Resource Centre certification

Description: Certification of Resource Centres to be included into the production infrastructure requires services for the ad-hoc running of tests. In order to reduce the overall overhead of this for the infrastructure, these are provided to all interested NGIs. The services include a top-level BDII, WMS and LB.

Assessment: These services were provided reliably throughout PY3. They are principally meant to support certification of new Resource Centres in emerging NGIs. The continuation of these support services may be revised in the future according the growth trends of EGI.

Score: 4

7 ANALYSIS

7.1 Activity Summary

A summary of the assessments made in this document is provided in the following tables. The scores from the previous years have also been included to provide further information as to how the service is progressing. The two previous annual assessments, MS108 [R9] and MS115 [R10] analysed the EGI Global Tasks as described in the DoW, therefore, where those tasks are now a service or a supporting activity within an overall service, the scores were averaged.

7.1.1 Coordination

Service	PY1	PY2	PY3
Project/Programme Management	3.3	4.3	4
Operations Coordination	3.6	3.5	4.5
Technology Coordination	3	3.1	3
Security Coordination	4	4	5

Table 1: Coordination Score Summary

7.1.2 Consulting and Support

Service	PY1	PY2	PY3
Strategy/Policy Decision Support	4	4	4
Policy Development	4	4	4
Helpdesk Support	3.8	3.7	5
Technical Consultancy and Support	3.3	3.5	4

Table 2: Consulting and Support Score Summary

7.1.3 Marketing and Outreach

Service	PY1	PY2	PY3
Marketing Services	4	4	3
Outreach Services	4	4	4

Table 3: Marketing and Outreach Score Summary

7.1.4 Software Services and Platforms

Service	PY1	PY2	PY3
Applications Database	4	4	5
Training Marketplace	2	3	4
Repository of Validated Software	3	3	4

Table 4: Software Services and Platforms Score Summary

7.1.5 Core Grid Services

Service	PY1	PY2	PY3
Accounting Portal / Repository	4	3.5	4
Catch-all Grid Services	4	3.5	4
Dev. of Ops Monitoring probes	3	3.7	5
GOCDDB	4	3.5	5
Incident Mgmt. Tool (Helpdesk)	4	4.2	5
Message Broker Network	4	3.5	5
Metrics Portal	4	4	4
Ops. Tools/Meta-service Monitoring	4	3.6	5
Operations Portal	4	3.7	5
Security monitoring tools	4	3.8	4
Service Availability Monitoring (SAM)	4	3.6	5
Resource Centre certification services	3	4	4

Table 5: Core Grid Services Score Summary

7.2 Service Costs

The following costs are based on figures submitted through PPT by the partners for the second year of the project for the EGI Global Tasks, which again have been presented with the EGI Service Portfolio – the supporting activities that enable such services are undertaken by one or more organisations in the EGI community to serve the needs of the whole EGI community.

Service Area	Year 2				
	Person Months	Total Cost	EC Contribution	EGI.eu Contribution	Other
Coordination	163.2	€1,464,361	€857,848	€319,250	€287,263
Consulting and Support	140.3	€1,026,225	€512,106	€256,556	€257,563
Marketing and Outreach	68.2	€485,629	€352,776	€121,407	€11,445
Software Services and Platforms	79.3	€460,499	€115,125	€115,125	€230,250
Core Grid Services	123.3	€1,273,611	€355,920	€317,497	€602,206
	574.3	€4,710,326	€2,193,774	€1,129,836	€1,388,727

Table 6: Service Cost by Service Category

In Table 6, the Total Costs for each service are based on the effort recorded in PPT and the costs provided in the Form C (or avg. costs when these are not available), the EC contribution, EGI.eu contribution (either from EGI.eu participants directly to work done at EGI.eu or paid by EGI.eu to partners undertaking the work) and contribution from other sources – primarily contributions from the partner to the cost of the local effort. Note: EGI Global Tasks, undertaken at EGI.eu, are funded

at 75% by the EC for first two years of project, and 25% for the final two years. EGI.eu pays partners 25% of their costs for undertaking EGI Global Tasks. These costs are broken down into each individual service in *Table 7*.

Service	Year 2				
	PMs	Total Costs	EC Funding	EGI.eu Funding	Other
Project/Programme Mgmt.	94.5	€763,677	€572,234	€144,079	€47,364
Operations Coordination	39.2	€393,038	€162,611	€98,260	€132,168
Technology Coordination	9.0	€92,182	€69,137	€23,046	€0
Security Coordination	20.4	€215,464	€53,866	€53,866	€107,732
Strategy/Policy Decision Support	26.1	€182,175	€136,631	€45,544	€0
Policy Development	9.2	€68,180	€47,407	€17,045	€3,727
Technical Consultancy/Support	43.6	€300,763	€225,572	€75,191	€0
Helpdesk Support	65.2	€507,672	€126,918	€126,918	€253,836
Marketing	34.5	€239,193	€179,395	€59,798	€0
Outreach	29.9	€213,872	€148,959	€53,468	€11,445
Training Marketplace	6.0	€34,205	€8,551	€8,551	€17,102
Applications Database	7.9	€66,066	€16,516	€16,516	€33,033
Repository of Validated Software	65.4	€360,229	€90,057	€90,057	€180,114
Core Grid Services	123.3	€1,273,611	€355,920	€317,497	€602,206
	574.3	€4,710,326	€2,193,774	€1,129,836	€1,388,727

Table 7: Service Cost by Individual Service

Some of these services are delivered by technical experts (e.g. coordination tasks) while others are technical services that need to be operated, maintained and developed. These costs are broken down in *Table 8* where the service operation costs includes the time taken to deploy and configure the technical service; maintenance costs refer to incremental development work undertaken to address issues found in the operational use of the service; and service development refers to new significant items of functionality prepared in response to community wide needs. The coordination and service split is for the management of the service and support staff.

Services	Total Effort	Service Operation	Service Maintenance	Service Development	Service Coordination	Service Support
Project/Prog. Mgmt.	94.5	€0	€0	€0	€190,919	€572,758
Operations Coord.	39.2	€0	€0	€0	€154,120	€238,918
Technology Coord.	9.0	€0	€0	€0	€46,091	€46,091
Security Coord.	20.4	€0	€0	€0	€108,137	€107,327
Strategy/Decision Supp.	26.1	€0	€0	€0	€45,544	€136,631
Policy Development	9.2	€0	€0	€0	€39,749	€28,431

Tech. Consult./Support	43.6	€0	€0	€0	€190,801	€109,961
Helpdesk Support	65.2	€0	€0	€0	€65,725	€441,946
Marketing	34.5	€0	€0	€0	€46,096	€193,097
Outreach	29.9	€2,289	€6,867	€13,735	€56,854	€134,127
Training Marketplace	6.0	€3,420	€3,420	€27,364	€0	€0
Applications Database	7.9	€3,303	€9,910	€52,853	€0	€0
Repo. of Valid. Software	65.4	€26,732	€0	€106,927	€56,642	€169,927
Core Grid Services	123.3	€537,774	€339,298	€355,250	€41,289	€0
	574.3	€573,519	€359,496	€556,128	€1,041,968	€2,179,216

Table 8: Service cost breakdown – Ops., Maint., Dev., Coord, Supp.

7.3 Cost Evolution

Last year's report (MS115), was the first exercise conducted in trying to understand the cost of the various activities and services and to start to analyse the individual areas such as operations, maintenance, and development. The initial work provided a baseline that allowed to transform the way the cost breakdown could influence management decision-making. As the EGI Global Tasks have evolved into a more structured service portfolio, EGI.eu management was able to look at also the effort required for coordination and support of these services.

At the Evolving EGI Workshop held in January 2013 in Amsterdam [R12], these services, supporting activities and related costs were discussed in depth and the impact of not doing the service was rated between critical, degradation, no growth and no impact. Part of EGI's sustainability efforts and short-to-medium term strategy is based on what the community feels is the most critical and the costs to ensure those services are carried out in the future. Over the next several months, the EGI Council will be further detailing a plan and strategy that takes into account this costing work.



8 CONCLUSIONS

This report describes the EGI Global Tasks being offered throughout the EGI ecosystem and provides a self-assessment based on the newly defined service portfolio as they are currently being offered and provides a means for ensuring their continuous improvement.

Over the last few months the EGI.eu service portfolio has been analysed based on the impact of these services and the subsequent costs to further define what and where funding and support needs to be provided.

In the short- to medium-term future, two new areas being explored will also impact the EGI.eu Service Portfolio through the addition of federated resource allocation and provisioning and services resulting from the EGI pay-for-use activities.

All services are being evaluated within the EGI Council for long-term strategic impact and decisions and potential sustainability models for what services should be offered and funding models to support them. The “Global Tasks” will also undergo a re-bidding process for services provided by EGI.eu partners. A transition plan will be defined in September 2013 and implemented in the remaining six months of the project.



9 REFERENCES

R 1	EGI Operations Management Board - http://go.egi.eu/omb
R 2	EGI-InSPIRE SA1 Activity Roadmap 2013 - https://wiki.egi.eu/wiki/EGI-inSPIRE_SA1#2013
R 3	Operational Tools (JRA1) - https://indico.egi.eu/indico/categoryDisplay.py?categId=14
R 4	EGI.eu Operational Level Agreement - https://documents.egi.eu/document/1093
R 5	MoU between EGI.eu and DANTE - http://documents.egi.eu/document/501
R 6	European Middleware Initiative (EMI) - http://www.eu-emi.eu/
R 7	Initiative for Globus in Europe (IGE) - http://www.ige-project.eu/
R 8	EGI-InSPIRE D2.15 Communications and Marketing Plan - https://documents.egi.eu/document/1070
R 9	EGI Applications Database - http://appdb.egi.eu
R 10	EGI-InSPIRE MS108 Global Task Review - https://documents.egi.eu/document/314
R 11	EGI-InSPIRE MS115 Global Task Review - https://documents.egi.eu/document/961
R 12	Evolving EGI Workshop 29-30 January 2013 - http://go.egi.eu/Evolving-EGI-WS-2013