EGI Sustainability and Business Models Workshop
Summary Report

EGI Technical Forum 2011 – 20 Sept 2011

http://go.egi.eu/egitf11-sustainability-workshop

As EGI moves from a project-based model to a federation of national infrastructures, the need for a long-term strategy has come to the forefront of all stakeholders within the EGI community. Each aspect of the ecosystem needs to be re-evaluated, not only from a technological perspective, but organisationally as well.

Early this year, the EGI-InSPIRE project produced an EGI Sustainability Plan [1] as a first step towards preparations of a long-term sustainability strategy.

In order to stimulate engagement and provide a common ground for continuous discussion, the EGI.eu Policy Development Team (PDT) organised a two-session 'Sustainability and Business Models' workshop as part of the EGI Technical Forum 2011 in Lyon [2]. The workshop covered sustainability plans, issues from around the EGI community, as well as an overview of business models in the context of EGI. It served as an intermediate step towards an evolved EGI sustainability plan due out next year.

Survey Results

In preparation for the workshop, a survey was conducted with the National Grid Initiatives (NGIs) and European Intergovernmental Research Organisations (EIROs) participating in EGI. The goal of the survey was to start to analyse the current status regarding sustainability on a national level, understand the maturity of existing business models for providing grid services, the criticality of EGI-InSPIRE funding and explore alternative revenue streams to EC funding.

15 NGIs/EIROS responded to the survey, which highlighted some trends and issues throughout the community. Some key points evolved around clarifying the value propositions for the NGIs, EGI.eu and EGI as a whole, understanding the need for NGIs to diversify revenue streams, exploring billing in a potential usage-based model, and identifying organisations with defined business models.

More detailed information can be found in the dedicated survey analysis report [3].

Sustainability of the EGI Ecosystem

The EGI ecosystem is composed of several types of entities interacting together to create value for the European Research Area. The sustainability of the NGIs and EGI.eu is essential to the whole of EGI, alongside technology providers who deliver the critical software components.

Within this context, one goal of the workshop was to bring together representatives of the three critical groups within the ecosystem, User Communities, Resource Providers and Technology Providers to get their points of view, strategy and plans for ensuring sustainability.

A User Community Perspective

The largest user community has been and continues to be from High Energy Physics (HEP) related to the Large Hadron Collider (LHC). The sustainability of this community comes from the Worldwide LHC Computing Grid (WLCG) project, which has been established through a Memorandum of Understanding, renewed every 5-years, between CERN and 50 funding agencies, each pledging resources to the experiments. The WLCG was explicitly constructed as the long-term organisation to manage and evolve LHC computing for at least the lifetime of the LHC (>20 years).

The WLCG contributes by procuring resources that are then federated under EGI. The WLCG does not consider usage-based charging for the contributed resources as an appropriate and viable solution for this community, however, there is an overarching value in paying for coordination services at a European level.

There is a clear difference in nature between EGI as the enabler of the federation of existing resources, from the nature of a commercial cloud provider that focuses on procuring resources. According to the WLCG, new user communities are more likely to embrace a cloud-like approach in the procurement of new resources. EGI should focus on integrating academic or public sites with commercial service providers that give users the choice. The EGI Federated Clouds Task Force [4] is a good starting point to incorporate the necessary services to make this happen.

A Resource Provider's Perspective

All NGIs need to establish where they want to be in the short- and long-term future and how they want to achieve sustainability as a national federation of resource providers. The answer will be different for each NGI, but the need to define the core products and value an NGI brings to its community is crucial to improving its sustainability.

The German NGI provided an NGI perspective by offering an overview of their 'Quest for Sustainability'. The NGI-DE is an association of large academic compute centres in Germany with a diverse set of grid initiatives serving as a branch of EGI. The NGI uses this model as the foundation on which sustainability can be built by leveraging the partners to run and maintain the deployment of HPC, grid and other IT services for local, regional, national and international users.

NGI-DE has taken a business plan approach by answering a set of central questions as to what is the actual product being offered and on which to base sustainable operations. As no one approach can be applied to all organisations, it was recommended that each NGI build individual business models based on deployment scenarios that will ensure viable, sustainable solutions for the years to come.

A Technology Provider's Perspective

The European Middleware Initiative (EMI) project is one of the main technology providers for EGI, which represents a close collaboration of the major European middleware providers ARC, dCache, gLite & UNICORE.

EMI presented their short-term goals of exploring and implementing sustainable models to support, harmonise and evolve the distributed computing and data management middleware for deployment in EGI, PRACE and other distributed e-Infrastructures.

As a technology provider, EMI's strategy is to understand and define its value proposition far beyond the Distributed Computing Infrastructure (DCI) community. Sustainability drivers such as expanding the user base, decreasing maintenance costs, and charging for professional services could also be leveraged. In addition to expanding usage to non-traditional users, contributing to and implementing open standards enable re-uses of technological components outside the DCI ecosystem and is another key area for EMI to exploit.

Currently, EMI sees that the scientific institutes miss the organisational structure and capabilities to 'go to market' such as business-oriented legal departments to cover patents, trust insurances and IPR issues, marketing departments that can influence a mass audience, as well as software stability and scientific innovation conflicts. There are two possibilities now: institutes can establish the necessary departments and skills, or seek support in commercial companies or external organisations to allow scientists and researchers to focus on their science and research.

Exploring Business Models

Business models may help provide the necessary structure for those involved in e-Infrastructures to develop a series of organisational and strategic components for delivering its value to its consumers. A common misconception throughout the community is that a business model is how to generate revenue or conduct commercial activities. While any organisation that creates and delivers value must be able to generate enough revenue to cover its expenses, a business model is much more than that.

A business model can be basic or complex, but is simply "the rationale or description of how an organisation creates, delivers, and captures value sustainably". In fact, revenue generation is just one aspect of a 9-point model that was presented in the workshop, which clearly defined what business models are, how they fit within the context of EGI.

Overall, a business model must be intuitively understandable, but must not over simplify the complexities of how an organisation functions. Therefore, the outlined concepts serve as a pragmatic way to start defining a strategy using a common framework from which to build sustainability. The business model components comprise: Customer Segments; Value Propositions; Channels; Customer Relationships; Key Resources; Key Activities; Key Partnerships; Cost Structure; and Revenue Generation.

All organisations involved in EGI are encouraged to start developing their own business models around providing grid services as part of their own sustainability strategy. This will ensure the national e-Infrastructure is well positioned for the coming years.

An NGI Business Model

A potential NGI business model was introduced during the workshop by the Israeli NGI to stimulate discussion around expanding organisational models for NGIs to resell capacity space.

The model presented was analogous to solar panel programmes for residential homes. The owner purchases the relevant equipment (solar panels), dedicates part of their roof or land, which is configured to meet the national electricity company requirements. Property owners consume energy according to their needs, but are able to sell the unused energy back to the utility company. This concept could be applied to the NGI's Resource Centre.

However, there are legal issues around selling resources built from public funds in many jurisdictions. In addition, selling anything creates a market, whether existing or not, and using taxpayer's money could be seen as providing a competitive advantage and is illegal in several European countries. It is apparent that not all laws are the same in every country, which would need to be investigated further on a national level.

Summary and Next Steps

By providing flexibility to users, whether through offering a wider variety of technology, the freedom to control environments, or improved organisational models to join will surely open new opportunities. One of the main issues regarding sustainability is to allow for a flexible infrastructure that is open to all users. Collaboration has been EGI's strong suit over the last decade, which has allowed for sharing of not only resources but expertise as well. The grid community has expanded extensively, but generally around a single computing model.

EGI will need to continue to stay technically relevant by branching out from a niche market and to find innovative ways of attracting and integrating new users on a wider scale.

Examples from the different actors within the EGI ecosystem have outlined the necessity of developing business models to understand the value and beneficiaries of the service offerings.

A positive step forward has been for a non-technical NGI contact, the 'NGI Coordinator', to be established inside each NGI to improve coordination, as successful national infrastructures will help ensure a sustainable pan-European grid service.

References

[1] EGI Sustainability Plan
https://documents.egi.eu/document/313
[2] EGI TF Sustainability and Business Model Session
http://go.egi.eu/qrcbp
[3] Sustainability & Business Models Survey Analysis
https://documents.egi.eu/document/797
[4] EGI Federated Clouds Task Force
http://go.egi.eu/wiki-EGI_FCTF

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