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# A business model approach for a sustainable Grid infrastructure in Germany

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## Description of the Work

After a long period of project-based funding, during which the improvement of the services provided to the user communities was the main focus, distributed computing infrastructures (DCIs), having reached and established production quality, now need to tackle the issue of long-term sustainability.

With the transition from EGEE to EGI in 2010 the major part of the responsibility (especially financially) now is on the national grid initiatives (NGIs). It is their duty not only to ensure the unobstructed continuation of scientific work on the grid, but also to cater for the needs of the user communities to be able to utilise a broader range of middlewares and tools.

Sustainability in grid computing therefore must take into account the integration of this variety of technical developments. Newer developments like cloud computing need to be taken into account and integrated into the usage scenarios of the grid infrastructure, leading to a distributed computing infrastructure encompassing the positive aspects of both.

On the whole a strategy for sustainability must focus on the three main aspects of technical integration, core services and business development and must make concrete statements how the respective efforts can be financed. Although not common in science, it seems necessary to use a business model approach to create a business plan to enable the long-term sustainability of the NGIs and international DCIs, like EGI.

## Conclusions

This talk presents a business plan as suggested for the national German Grid initiative NGI-DE. It is based on quantitative calculations, making it possible to forecast profits and losses, according to a set of mandatory services and "products". The different scenarios that have been calculated will be presented and compared with each other. Their benefits and drawbacks will be described in detail. The presentation also wants to solicit input from the relevant grid user communities and the other NGIs with the goal of creating a common basis for and common understanding of sustainability strategies.

## Impact

NGI-DE through a series of workshops has developed several different scenarios with several varying parameters. The set of services provided can be very basic, just the vital services to keep the infrastructure running or it could include a variety of high level services that are not necessary to use the infrastructure but could ease its use significantly. Calculations have been for a larger and a smaller number of VOs using the infrastructure and a larger and a smaller set of Resource Providers. Two types of legal entities for the central organisation have been considered, one a non-profit organisation, that can only service scientific users, the other a private limited company that could in the future also have industrial customers.

Challenges encountered in the process of defining these scenarios were related to offering an infrastructure

to both science and industry, acquiring new customers and general business development, legal issues with scientifically funded resources and the real full cost of computing.

## **Overview (For the conference guide)**

This talk presents a business plan as suggested for the national German Grid initiative NGI-DE. It is based on quantitative calculations, making it possible to forecast profits and losses, according to a set of mandatory services and “products”. The presentation also wants to solicit input from the relevant grid user communities and the other NGIs with the goal of creating a common basis for and common understanding of sustainability strategies.

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