e-ScienceTalk

D1.3 ANNUAL IMPACT AND SUSTAINABILITY REPORT

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Abstract

This report summarises the impact of longer running products such as iSGTW and GridCafé, and explores possibilities for the sustainability of all e-ScienceTalk's products beyond the close of the project in May 2013.

I. COPYRIGHT NOTICE

II. DELIVERY SLIP

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IV. APPLICATION AREA

This document is a formal deliverable for the European Commission, applicable to all members of the e-ScienceTalk project and its beneficiaries and collaborating projects.

V. DOCUMENT AMENDMENT PROCEDURE

Amendments, comments and suggestions should be sent to the authors.

VI. PROJECT SUMMARY

Over the last 10 years, the European Commission and governments have invested substantial funds in distributed computing infrastructures. Scientists have access to state-of-the-art computational and data resources located around the world, putting European research into a leading position to address the greatest challenges facing us today, such as climate change, pandemics and sustainable energy. The advent of the European Grid Infrastructure, combined with the blurring of boundaries between grids, clouds, supercomputing networks and volunteer grids, means that a clear consistent source of information aimed at non-experts is now more important than ever, through dissemination projects that cross national boundaries.

Objectives:

- e-ScienceTalk will build on the achievements of the GridTalk project in bringing the success stories of Europe's e-Infrastructure to policy makers in government and business, to the scientific community and to the general public.

- e-ScienceTalk will work with EGI-InSPIRE and other collaborating projects to expand the scope of the existing GridTalk outputs, and to report on the interactions of grids with e-Infrastructures such as cloud computing and supercomputing.

- The project will explore options for the sustainability of e-ScienceTalk's products.

- e-ScienceTalk will produce a series of reports aimed at policy makers to disseminate key policy issues underpinning grid and e-Infrastructure development in Europe. The project will also coordinate e-concertation activities.

- The GridCafé, GridCast and GridGuide suite of websites will cover new topics and explore novel web technologies; they will integrate closely with GridPP's Real Time Monitor, combining live views of grid activity with the human aspects of computing.

- The growing weekly publication, International Science Grid This Week (iSGTW) will bring news and events to the existing and potential e-Science community.

VII. EXECUTIVE SUMMARY

The reviewers of the GridTalk project, the predecessor to e-ScienceTalk, recommended assessment of the long-term impact of the GridTalk products carrying forward into the e-ScienceTalk project. This report analyses the metrics and feedback gathered during both GridTalk and the first year of e-ScienceTalk in order to assess and summarise the impact of all e-ScienceTalk products.

Both qualitative and quantitative research methods were used to assess the impact of the products on their key audiences. Analysing the key metrics for the first year of e-ScienceTalk shows that all end-of-year targets have been achieved, and in a few cases exceeded. Overall, e-ScienceTalk has been successful in its dissemination of grid computing and e-Infrastructures. E-ScienceBriefings have engaged policy makers and have been effective at communicating research from 29 collaborating projects. The GridCafé continues to raise the general public's awareness of the existence of e-Infrastructure, and a major new area of the website on cloud computing is soon to be launched. GridCast has been highly successful at forging links within the community and fourteen mini and major GridCast events have taken place this year (exceeding the yearly target of three). The weekly newsletter, iSGTW has been enormously effective at building its subscription numbers, with a 21% increase in less than one year of the three year project.

As some of the project-end metrics have been reached, this document includes strategy for gathering feedback and metrics on e-ScienceTalk products going forward into Year 2 and beyond. The report also explores various options for sustainability beyond e-ScienceTalk. The sustainability strategy focuses on evaluating all e-ScienceTalk products on their impact, maintenance (costs/effort) and likelihood of attracting funding or in-kind support.

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1 INTRODUCTION

1.1 e-ScienceTalk Objectives

E-ScienceTalk's main aim is to build on the significant achievements of GridTalk in bringing the success stories of Europe's e-infrastructure to its audiences. The key challenges are to work with the new distributed computer infrastructure and maintain and enhance the quality of existing outputs, while reaching out to new disciplines and regions. Outlined below are some of the key objectives of the e-ScienceTalk project.

- To disseminate the success stories and societal impact of grid computing and e-Infrastructures to researchers throughout Europe and beyond.
- To engage policy makers in grid and e-Infrastructures.
- To raise awareness amongst the general public of the existence of e-Infrastructures and how these networks contribute to the European Research Area.
- To communicate good practices and key successes to other projects.

1.2 Target Audiences

E-ScienceTalk's aims, as outlined in the Description of Work [R1], are to increase awareness of the scientific impact of European grid and e-Infrastructure projects by providing interesting, useful and insightful material aimed at four main audiences:

1. Influential policy makers in European science, government and business.
2. European scientists in a position to develop or exploit grid computing and e-Infrastructures.
3. Members of the public in Europe and worldwide.
4. University and final year high school students i.e. the future users of the infrastructure.

1.3 Key Messages

The project scope goes beyond the dissemination of grid computing to cover the broader e-Infrastructures e.g. volunteer, cloud, high performance computing. The principal messages communicated in the project have been:

- Grids and e-Infrastructures are enabling scientists in Europe and around the world to achieve results and make discoveries that would otherwise be impossible.
- Computing grids and e-Infrastructures are a daily part of the lives of scientists and Europe is in a leading position to exploit these infrastructures in disciplines from life sciences, to social sciences, to high energy physics.
- Use of e-Infrastructures is growing, with tens of thousands of users depending on grid computing projects in Europe alone and new projects proliferating across the globe.
- Funding for grid computing and e-Infrastructures has been, and remains, a worthwhile investment for Europe in order to support the European Research Area through the Digital

Agenda.

- The technologies and infrastructure developed for distributed computing infrastructures have varied applications in business and government and Europe is benefiting from these.
- Grid computing and e-Infrastructures have had, and will continue to have, an important and positive impact on the lives of the general public, enabling scientific breakthroughs in areas such as understanding climate change, improving health and novel IT services.

1.4 How Does e-ScienceTalk Measure its Impact?

In order to assess how successful the e-ScienceTalk project has been at meeting its objectives, reaching target audiences and disseminating key messages, we need to determine the impact of our activities. By looking at the impact our work has had on our intended audiences, we can try to assess how useful the project has been, what we can improve on, as well as laying down lessons for other projects to build upon in the future.

Measuring impact is important as it defines the outputs and outcomes of a project. For e-ScienceTalk, it is important to measure how effective the project has been in achieving its dissemination aims. An on-going evaluation is crucial for improving the quality and effectiveness of our dissemination methods, and for making future recommendations. Assessing the effects of the e-ScienceTalk project's messages on its intended audiences is challenging, and requires a clear strategic plan. As each of the e-ScienceTalk dissemination activities has their own specific audience, objectives and expected outcomes, each one has to be assessed differently. We decided to evaluate the impact of each activity separately in two main ways – by gathering a number of metrics and examining valuable feedback.

1.5 Quantitative Methods: Overall Project Metrics

The success of each activity was measured by establishing a number of metrics and targets, and tracking their progress on a quarterly basis throughout the project. For example, determining audience reach was considered an important metric to quantify for each activity. We therefore set targets and recorded the number of bloggers for GridCast and subscribers for iSTGW. This report includes metrics from the first three quarters of the project year up to the end of May 2011.

The main e-ScienceTalk project metrics are outlined in D4.2 *Quality Assurance Guide* [R2] and the overall targets are listed in the table below. The project metrics achieved are reported and analysed in more detail in the D4.3 *Annual Report on Feedback and Metrics*, produced in PM12 by WP4.

Google Analytics was used to analyse traffic for all websites within the e-ScienceTalk project (e.g. GridCast, GridCafé, GridGuide, iSGTW). It gives a wealth of information, not just about reader numbers for individual pages but also the paths readers take through the website, geographical location, technical information, and many other metrics. Website statistics can also offer an insight into users' behaviour and therefore could provide e-ScienceTalk with a strategy for enhancing visitor experience.

Both the scale and geography of circulation for various e-ScienceTalk materials were also monitored throughout the first year of the e-ScienceTalk project.

Table 1: Project level metrics and targets

Work Package	Metric no.	Description	Target Metric (by 2013)
WP1	1.1	Projects covered by e-ScienceBriefings	20 per year
	1.2	Reports and briefings circulated	400 per year
	1.3	Countries where reports or briefings are distributed	30 per year
WP2	2.1	Sites on GridGuide	75
	2.2	Bloggers contributing to GridCasts	5 per GridCast
	2.3	GridCasts per year	2 in Europe per year, 1 outside Europe
	2.4	New areas in GridCafé	3, one new area per year
WP3	3.1	iSGTW subscribers	30% increase
	3.2	Articles on European projects	50 per year
	3.3	Projects in the iSGTW/GridCafé resources section	100 in total
	3.4	iSGTW printed materials distributed	1000 in total

1.6 Qualitative Methods for Assessing Feedback

Establishing how and to what degree a communication activity has influenced a target audience is complex, so to understand this effect a variety of qualitative methods were used during the first year. Feedback has been solicited in Year 1 from a number of sources to determine whether the projects' dissemination activities are having an impact within the intended community and beyond. For the purposes of continuity, feedback from GridTalk has also been included in the report findings. Several methods have been used during the project:

- **User feedback from interviewing both science communication professionals and scientists from a variety of fields.** The reviewers were asked to examine the different products on the e-ScienceTalk website and comment on the following parameters: interface and navigation, content and layout, and accessibility to the intended audience.
- **One-to-one feedback sessions with participants at conferences**, such EGI Technical Forums and User Forums and e-Infrastructure Concertation meetings, were also arranged.
- **Annual surveys of iSGTW's readers** (two were conducted each year during GridTalk and a further survey was launched at the beginning of July 2011 and will the results will be reported in D2.3 *Report on survey of iSGTW readers and annual metrics*).

- **Unsolicited feedback** (as it provides examples of how people in the community are using e-Science products and how they are making a difference).

The document, D4.3 *Feedback on GridTalk* [R3], describes in detail some of the methodologies used for gathering feedback during the GridTalk project.

2 E-SCIENCETALK PRODUCTS: BACKGROUND, METRICS AND IMPACT

2.1 e-ScienceBriefings

2.1.1 Background

E-ScienceTalk continues the successful series of GridBriefings, renamed e-ScienceBriefings in Q2 which are aimed at policy makers in all layers of government and industry, describing for a non-technical audience how long-term investments in e-infrastructures have led to concrete results. The reports provide useful policy metrics, in terms of investment, manpower and spin-offs in science and industry, and also put results into the context of the overarching research themes supported by the European Commission.

2.1.2 Product Metrics

E-ScienceTalk has expanded the e-ScienceBriefings distribution lists to regions outside Europe including the US, for example through collaboration with OSG, Asia in partnership with ASGC and EUAsiaGrid, together with CHAIN. The content of the e-ScienceBriefings has also broadened, to discuss how grid computing is interacting with and influencing other e-Science areas including supercomputing, clouds and volunteer grids in order to offer policy makers a full picture of the development of e-Infrastructures in Europe.These developments should help to widen the appeal of the e-ScienceBriefings, and increase the impact of these policy documents.

The e-ScienceTalk Description of Work [R1] recommends analysing three key metrics to measure the audience: number of projects covered (target: 20 per year), number of reports and briefings circulated (target: 1000 per year) and number of countries where reports and/or briefings are distributed (target: 30 year). In addition to the top-line project metrics we also examined a number of other metrics at work package level, including the number of policy events organised, the number of attendees at policy events and the number of collaborating projects that have distributed articles on e-ScienceTalk's behalf.

2.1.3 What has Been the Impact of e-ScienceBriefings?

Feedback from a GridTalk survey [R3] indicated that GridBriefings were relatively unknown. E-ScienceTalk has addressed this lack of awareness by increasing circulation and broadening their scope. Since commencement of the e-ScienceTalk project, 29 collaborating projects have been covered by e-ScienceBriefings, which is an additional nine projects over the target. These projects have included e-IRG, EGI-InSPIRE, HPC-Europa2 etc. E-ScienceBriefings have also been distributed to a wider international audience amongst 36 countries each quarter thereby increasing the impact. An RSS feed for the Briefings was also set up on the 14th February 2011 and there have been 20 items in total. So far, policy makers in Switzerland, US, Belgium, Finland, Greece, UK, Italy, Ireland and Hungary and many other countries have received updates. Five policy articles have been published on topics such as 'Mapping the e-Infrastructure landscape[1]', 'Cloud computing: What's on the Horizon?[2]'

[1] http://www.e-sciencetalk.org/briefings/EST-Briefing-15-Landscape-Newt.pdf

[2] http://www.e-sciencetalk.org/briefings/EST-Briefing-17-Cloud-Web.pdf

and 'Supercomputing:Empowering Research[3]'. An Asia-Pacific Special Issue[4] was also published in Q3.

Assessing how the e-ScienceBriefings have impacted upon or influenced their intended audiences is a challenge. First, it is difficult to establish a linear causal relationship between specific briefings and particular effects on practice and policy. Secondly, difficulties arise when trying to quantify many predominantly qualitative effects such as improved understanding or knowledge spill-over effects. As part of the evaluation process, feedback was collected at the EGI-Technical Forum 2010, where many delegates commented that the briefings were well written and pitched at the right level for non-experts. Policy makers at the conference agreed that e-ScienceBriefings had increased their awareness of e-infrastructure, e-ScienceTalk and the aims of collaborating projects. The combination of text, pictures and profiles appealed to a number of diverse audiences including user communities, policy makers and network providers.

2.1.4 Recommendations

Adding interactive media formats e.g. video could widen the appeal of e-ScienceBriefings in disseminating the project's message and increasing its impact, and we already add additional links to extra material on the online versions[5]. The distribution and impact of the e-ScienceBriefings may be wider than we can trace as many policy makers share the information with colleagues. Other projects such as EGI-InSPIRE also distribute our policy documents to their mailing lists and through the RSS feed. We will continue to encourage collaborating projects to distribute the briefings and track their circulation. To measure the influence of the policy documents it would be worthwhile to survey community members to establish whether principal messages have been effectively communicated to policymakers, parliaments and governments.

2.2 GridCafé

2.2.1 Background

The GridCafé website (www.gridcafe.org) was re-designed by the GridTalk project after being inherited from CERN. It was designed with the aim of explaining to a non-expert audience in a simple and stimulating fashion "what grid computing is and what it could soon be." E-ScienceTalk has expanded GridCafé's scope and appeal through new media channels keeping it up-to-date and at the cutting edge of grid and e-Science dissemination. Work is now in progress to further develop links to demos, videos, games and online interactive tools. The content of the site has also been expanded to cover the interactions between grid computing and other forms of e- Infrastructure, including clouds, supercomputing and networks.

2.2.2 Product Metrics

The e-ScienceTalk Description of Work [R1] recommended measuring a number of key metrics to evaluate the impact of GridCafé. Our output target was to cover new content areas such as cloud computing, in the Cloud Lounge (described in Section 2.1.4). The number of grid and e-Infrastructure

[3] http://www.e-sciencetalk.org/briefings/EST-Briefing-16-SuperComp-HD.pdf

[4] http://www.e-sciencetalk.org/briefings/EST-Briefing-18-Asia-Web2.pdf

[5] http://www.e-sciencetalk.org/briefings.php

projects in the GridCafé resources section was also monitored with a target of 134 projects. Google Analytics software was used to keep track of unique visitors and page views. The number of unique visitors is a useful metric as it tells you your reach or the total size of the audience coming to your site. Page views are an indication of how interested people are in the site.

2.2.3 What has Been the Impact of GridCafé?

GridCafé is the longest running of the e-ScienceTalk products and is well known and liked in the grid community. As one of the few places where grid computing is presented without bias to a specific grid or project, GridCafé continues to be widely used as a reference by grid project websites. The impact of GridCafé has been significant and the number of interested parties that endorse the site as a valuable educational tool has reflected this. Over 134 grid and e-Infrastructure projects are now referenced on GridCafé including projects such as Globus, Worldwide LHC Computing Grid (WLCG) project and Berkley University's BOINC group. Users have benefited from additional material regularly added to the 'In debate' policy and grid-powered projects sections. During the third quarter of e-ScienceTalk, the site was translated into a fifth international language, Chinese[6], which further extends the GridCafé's global impact and reach.

Nearly thirteen thousand unique visitors viewed the website in the first three quarters of the e-ScienceTalk project. The number of page views for GridCafé has also been significantly high at 138,623. A high ratio of page views to visits means an interested audience. This ratio is 10 pages per visitor for GridCafé, which means that readers are visiting the site regularly and are sufficiently engaged by the content to remain on the site.

Results from a previous GridTalk online survey [R3] indicate that the GridCafé website is reaching its intended audience who are, on the whole, visiting the site to find out introductory material and information on projects which use grid computing. Survey results during GridTalk also show that a lot of visits are from young people and students who do not work in grid computing. GridCafé is impacting its target audience. Recent feedback from surveying science communicators and scientists on the updated GridCafé has also been encouraging. The reviewers concluded that GridCafé provides a useful starting point from which to learn about e-Science infrastructure. The reviewers liked the animations, and found the site to be well laid out and easy to navigate.

2.2.4 Projects: e-ScienceCity and CloudLounge

As part of the e-ScienceTalk project, we are currently building upon the success of the GridCafé website by creating an e-ScienceCity[7]. The e-ScienceCity will provide a general introduction to grids through GridCafé, but will also include content on cloud computing, volunteer computing and supercomputing. The first area of e-ScienceCity to be created will be the CloudLounge, which gives a description of the technologies and issues surrounding cloud computing, suitable for the general public. The e-ScienceCity will also be available to visit through a 3D virtual world, which is under development.

[6] http://www2.twgrid.org/gridcafe

[7] www.e-sciencecity.org

2.2.5 Recommendations

A future strategy for measuring impact could be to examine other metrics such as unique page views/unique visitors per month, returning visitors and average number of page views per visit. Examining visitor trends in more detail and how people navigate the site could also aid content development. In addition, further user surveys or quizzes could offer an insight into the impact of GridCafé to ensure the audience comprehends the key messages.

Given the close relationship between the e-ScienceCity and CloudLounge sites, we will have to assess the impact of these new projects in collaboration with GridCafé and our other new projects in the e-ScienceCity. The 3D adjunct to the GridCafé website will provide a useful educational tool to engage a different subset of the public, and to give a greater depth of information and interactivity than possible with a standard website. One of GridCafé's audiences is young people and students, who are the future users and drivers of Europe's e-Infrastructures. The increased interactivity should strongly appeal to this group and have an impact on this generation of users.

2.3 GridCast

2.3.1 Background

GridCast (www.gridcast.org) combines blogs, videos and interviews from major grid computing, e-Infrastructure, and policy related events providing scientists with an opportunity to blog and podcast about their experiences. The site was initially created before the start of GridTalk, and was redesigned and re-launched in September 2009.

2.3.2 Product Metrics

In order to measure the impact of the GridCast blog several key metrics and targets were outlined at the start of e-ScienceTalk. We measured the average number of bloggers contributing to GridCasts (target: 5 for each GridCast) and the number of GridCasts each year (target: 2 in Europe per year and 1 outside Europe). In addition, e-ScienceTalk also tracked the number of bloggers, blog entries and podcasts, which are all meaningful as they show the quality of the relationships being built online. These engagement metrics provide an indicator for measuring the level of GridCast visitor involvement, attention or commitment. General activity metrics such as page views and site visitors were also tracked.

2.3.3 What has Been the Impact of GridCast?

GridCasts have been important for community building within the grid and e-science community. During GridTalk, the GridCast blog had attracted over 10,000 visitors by October 2009 from up to 80 countries. Posts are featured in Google News and Google Alerts, which has helped to widen the sphere of influence. In GridCast's first year, GridTalk held 6 GridCast events. e-ScienceTalk has built on the blog's success with 14 GridCasts in the first three quarters of the year, exceeding the yearly target of two. By quarter three, we reached our target with six bloggers on average contributing to the site, with the sphere of influence increasing every quarter.

The e-ScienceTalk project also aims to increase GridCast's impact and appeal by both featuring high profile guest bloggers and breaking more news via the blog. Longer more, editorial style posts and

lengthier videos will also contribute to widen the impact. Examining the engagement metrics for the first nine months of e-ScienceTalk, there has been significant activity with a total of 222 blog entries, 56 podcasts and 50 active bloggers. Comparing quarters one and three, there has been a significant increase in activity from industrial bloggers. Activity and interest in the website has been high with 6,681 unique visitors and 16,679 page views. A high ratio of page views to visits means an interested audience. For GridCast, this ratio increased from 2.3 to 2.8 in quarter three.

The sphere of influence of e-ScienceTalk and the GridCast blog has increased greatly thanks to greater promotion of the blog through social applications such as the e-ScienceTalk Twitter feeds[8,9]. E-ScienceTalk currently has 1,104 followers on the Twitter website (14th July 2011) and has, in addition, been listed 100 times by fellow Twitter users.

Feedback from surveys and interviews indicates that GridCast is useful for the grid community, and individuals who are interviewed or filmed for the GridCast blog often write to thank e-ScienceTalk for featuring them on the site. The analysis of the social media usage, website statistics and user feedback shows that GridCast is providing a useful forum for those in the grid computing and e-Infrastructure community.

2.3.4 Recommendations

In addition to examining the network size, other metrics could also be researched such as the quantity and quality of commentary, social bookmarking and voting. Examining trends such as the growth of the Twitter network, and monitoring interaction with GridCast content such as the number of podcast downloads, could prove another useful method for measuring the blog's impact. Encouraging further interactions and examining commentary could help develop this community resource further thereby expanding GridCast's blog audience and impact.

2.4 GridGuide and Real Time Monitor

2.4.1 Background

GridGuide (www.gridguide.org) is the youngest of the e-ScienceTalk products and gives a human face to the grid, showing the sites and sights of grid computing. Users can listen to podcasts from grid sites worldwide, read about the ongoing work and watch interviews with researchers. As well as giving a visual overview of current grid work, GridGuide enables users to drill down to more detail about an individual scientist's work and how the grid has produced results. For these reasons, the GridGuide is useful for engaging with policy makers who are able to find out more detail about work going on in their local regions or areas of responsibility, as well as for engaging the general public and other scientists.

The GridGuide (www.gridguide.org) complements the GridCafé by providing a more in-depth guide to institutions across the globe that are involved in grids and distributed computing. GridGuide has become increasingly interactive and accessible through co-development with the Real Time Monitor[10] (RTM), which shows traffic on the worldwide grid in real time. The RTM is a 3-D virtual globe that shows a live version of the job traffic on the grid, and the current integration with GridGuide allows a

[8] https://twitter.com/isgtw

[9] https://twitter.com/e_scitalk

[10] http://rtm.hep.ph.ic.ac.uk/

visitor to click on a site and view both the technical statistics from the RTM as well as the pages from GridGuide. The RTM is widely used for demonstrating the grid at conferences and events and is an accessible and engaging way to understand more about the grid. E-ScienceTalk's aim is for the RTM to be available on a wider range of platforms and to show jobs from more sources.

2.4.2 Product Metrics

One of the main aims of e-ScienceTalk was to increase the number of sites featured in the GridGuide including a higher proportion located outside Europe, representing work both in the grid arena, but also in related areas such as the network layer, supercomputing, volunteer and cloud computing. The e-ScienceTalk Description of Work [R1] outlines a target of 75 sites in total, to be achieved by the end of the project.

2.4.3 What has Been the Impact of GridGuide and the RTM?

In its first months during GridTalk, the site gathered together 31 site guides, 52 people profiles, 19 slideshows, 27 videos plus much more, adding up to a total of 250 items on more than 240 pages. The site attracted more than 10,000 visitors, representing nearly 20,000 visits. However, feedback from GridTalk indicated a lack of awareness amongst key audiences of the GridGuide. During e-ScienceTalk the site was made more technically focused to appeal more to the grid computing community.

Since the commencement of the e-Science project, GridGuide has been promoted at a number of conferences and in iSGTW, which has impacted on awareness. The number of sites listed on this communication tool has increased to 37 in total. There are now 25 European sites on GridGuide and 12 non-European sites. Three other institutions have also expressed an interest in joining the site in the coming months. More people profiles are listed on the site; this has increased from 52 to 65 scientists. There has been a significant level of interest globally in the RTM with 64 countries[11] listed. e-ScienceTalk has attended and demo-ed the RTM at 15 events in nine months. Events have included the EGI User Forum 2011 and the Royal Summer Society Exhibition (7,000 attendees). This last event alone has contributed to this product being one of the most visible e-Science products. Activity to the website was also tracked using Google Analytics. During the first six months, there were 1,117 unique visitors to the site and the 2,022 page views.

Feedback from the review panel of science communicators and scientists was positive, as most felt GridGuide combined with the RTM demonstrates successfully what the grid does. One reviewer suggested that having a video of a scientist uploading data might be a useful addition to the site. The panel felt the map feature was a successful way of drawing you into the site. Compared to other e-Science products, GridGuide has a less well-defined audience and therefore measuring its impact is more challenging. However, reviewers agree that it is attractive and exciting dynamic resource.

2.4.4 Recommendations

One area of investigation is how to show projects and partners that are not located at a single geographic location e.g. EGI-InSPIRE and Open Science Grid. In order to asses the impact and future sustainability of both GridGuide and RTM, it would be valuable to find out from researchers which features they find most useful and would like to see on the two sites. GridGuide combined with RTM provides researchers with an opportunity to present how their individual sites interact within the global grid.

[11] http://gridportal-ws01.hep.ph.ic.ac.uk/dynamic_information/egee-locations.xml

2.5 iSGTW

2.5.1 Background

Prior to GridTalk, iSGTW already existed as Science Grid This Week, a publication produced by Fermilab in the US. This subsequently became International Science Grid This Week through collaboration with CERN, and the EU Editor post was then funded for two years by GridTalk. During e-ScienceTalk, the weekly electronic newsletter, International Science Grid This Week (www.isgtw.org) has broadened its scope significantly to cover e-Infrastructures such as supercomputing, distributed computing, networks, data, cloud and volunteer computing and their impact on grid development. The newsletter now covers a broad range of national and regional grid projects, as well as related developments in the wider world of modern science and research. New interactive features have been introduced during e-ScienceTalk such as the facility for readers to comment on and rate stories, to share them with other websites and social media sites, and to take part in polls and surveys.

2.5.2 Product Metrics

To assess the impact of iSGTW, a number of key metrics are being tracked during the project. Both the number of iSGTW subscribers (target: increase by 30% by close of project) and the number of articles in iSGTW on European projects (target: 50 per year) have been monitored. Subscriber numbers give a good indication of the number of regular readers of the newsletter – subscribers are readers who have signed up to receive the publication each week by email. However, some indicators of impact are more difficult to track. There are limitations on measuring the transfer of knowledge, but we have carried out a media analysis to see which channels have reported on iSGTW stories. Other metrics that have been examined include the number of projects in the iSGTW/GridCafé resources section (target: 100 by close of project) and the number of iSGTW printed materials distributed to European projects (target: 1000 by close of project). Other parameters that were investigated include analysing the geographic spread of articles published and website trends using Google Analytics.

2.5.3 What has Been the Impact of iSGTW?

The contribution that iSGTW is making to the international grid community is apparent in its growing popularity and increased appeal. ISGTW is ranked 8 out of 10 on Google's Page Ranking system and in GridTalk's first year the website saw 235,000 page views and over 9,900,000 file downloads. E-ScienceTalk has built upon this popularity. Current channels used to increase readership include social networking sites, for example, Nature Networks, specialist sites such as Slashdot and BoingBoing, and blogs to promote iSGTW stories and raise the profile of the publication.

At the end of GridTalk, the iSGTW newsletter readership was substantial with 6,561 subscribers. During the first nine months of e-ScienceTalk iSGTW's readership has grown considerably by an average of 266 new subscribers every month. In March 2011, iSGTW had 8,074 subscribers, which is an increase in readership of 21% in less than nine months. ISGTW has therefore already exceeded its targets for the first year in terms of subscriber numbers. E-ScienceTalk aims to increase subscriber numbers by 30% (to 8,529) by May 2013.

There was a significant peak in new subscribers in November 2010 attributable to a new collaboration with the SciTech Europe event, which brought in readers from new areas. There was also a sizeable growth in February 2011 when 443 new subscribers joined the iSGTW mailing list. This growth could be ascribed to proactive marketing linked to conference registrations and social media channels and/or

the significant broadening of the scope of iSGTW to include subject areas outside grid computing widening the appeal of the magazine. A combination of these factors has led to the significant growth in impact of the iSGTW.

In May 2011, iSGTW launched a new social media strategy, including linking more often from the branded Facebook and Twitter accounts and submitting links to aggregate sites such as Reddit and SlashDot. ISGTW has already seen small spikes in traffic (of around 500 visitors to old stories that were typically getting less than one visit per day) from posting to some of the aggregate sites and a growing stream of traffic from Facebook and Twitter. There is an increasing number of people following iSGTW on Facebook (114 fans and 404 people 'like' the page) and Twitter (274 followers).

In the first nine months of the project, the iSGTW editorial team exceeded some of the end-of-project targets set at the beginning of the e-ScienceTalk project. At the end of quarter two, the 37 issues of the newsletter included 83 articles on European projects - exceeding the target of 50 per year. In addition, 134 projects have already been included in the iSGTW resources section, which is over a third more than the target of 100 projects. ISGTW has expanded the geographical spread of its readership in reporting on non-EU projects, and has already covered 86 US-based projects and covered fifteen worldwide articles. The contribution that iSGTW is making to the international e-Infrastructure community is apparent in its growing popularity. The iSGTW website attracts visitors from a broad spectrum of the globe, over 163 countries which could be attributed to the wide geographical coverage including news from South Africa, Singapore and Taiwan. As a weekly magazine, it has a high frequency of readership, and therefore a wider impact.

Measuring the magazine's impact in terms of how many people read it and the transfer of knowledge is difficult. To maximise the impact of iSGTW, features and articles have been publicised more widely, with the aim of having these articles being 'picked up' by the general media and rebroadcast to their own readers. Since the start of the e-ScienceTalk project, individual stories have been promoted using press releases posted on AlphaGalileo, the European science news service which is used by thousands of journalists and the publication itself has been promoted by the editor's attendance at meetings such as the British Science Association Science and Communication conference in May 2011. By pursuing these promotional activities, iSGTW will potentially reach well beyond its current readership and draw stories from a wider geographic area than in GridTalk. One such article, titled 'CERN lends a hand to the origin of life[12]', published on June 8th 2011, caused significant interest amongst Twitter users. Over four thousand tweets were recorded sparked from 100 tweeters.

During the first nine months, there were 98,735 unique visitors to the website, and 181,722 page views of the website. Page views are a calculation of how many times a page is viewed and unique visits are the number of different people that visit your website. The ratio of page views to unique visitors provides a good indication of 'stickiness' of your website i.e. visitors stay on the site for on average of two pages. During the third quarter, iSGTW had close to 40,000 visits with nearly 2 pages viewed per visit and an average time of 2:15 minutes spent on the site.

2.5.4 Recommendations

The targets for iSGTW through to the end of the project set in the Description of Work have largely been exceeded during the first year. It is therefore recommended to analyse the trend in these targets

[12] http://www.isgtw.org/feature/cern-lends-hand-origin-life

over the first year, and set new targets for Year 2 and 3 based on these trends, including trends in the social media usage. It could be that email subscribers are no longer the best or only measure of our success. In today's environment people rarely choose to subscribe to anything, instead reading a story here and a story there, or following publications on Twitter, or Facebook, or aggregation services such as Reddit, Digg, and StumbleUpon.

3 SUSTAINABILITY

3.1 Introduction

One of e-ScienceTalk's avenues for research is to explore sustainability models for continuing e-ScienceTalk's products beyond the lifetime of the project, including open access digital repositories such as the BELIEF Digital Library and commercial funding models for products such as iSGTW. To make sure both the printed and electronic resources are not lost but can be shared and/or reused after the end of the project, e-ScienceTalk will establish a sustainability model early on. Planning for the sustainability of e-ScienceTalk's various digital and print resources (iSGTW, e-ScienceBriefings, GridCafé, multimedia outputs, digital library contents, images and publications) is an important part of our first year preservation strategy. It is important to ensure the sustainability of this collection, to safeguard the effort, time and funding invested.

There are many factors to consider when planning for sustainability. Our first year strategy will attempt to investigate and provide suggestions for avenues to explore for each of the products.

- **Evaluate the impact of each product.** Quality assurance, measuring impact and continuous evaluation throughout the project of each product ensures that the finished resource is of value and relevance to its users, and will help to identify further development or re-purposing opportunities. It will be important to establish which products are of most value.
- Examine the **practical steps** we can take to help ensure each e-ScienceTalk resource is sustainable. Identify similar projects and how they became sustainable.
- **Investigate the level of ongoing maintenance** that will be required to sustain the resource.
- **Examine the options available for financing sustainability and partnerships.** Clearly, the question of finance is the factor that will have most influence, and that will ultimately determine sustainability. Explorations of self-sustaining funding models during GridTalk found that the timing was not right for commercial support for iSGTW or GridCafé due to the financial climate.
- The project also aims to produce an **overview guide to dissemination for EU projects**, based on the extensive experience gained and lessons learnt during both phases of the project.

3.2 Strategy for Developing Sustainability

As an overall strategy, we will investigate each product individually to explore options for sustainability.

3.2.1 e-ScienceBriefings

It is likely that the e-ScienceBriefings in their current neutral format will not continue to be produced after the e-ScienceTalk project has ended unless we can find a suitable project or partner to continue their publication. We will look into whether this would be feasible or indeed, necessary based on the demand for the publications. E-ScienceBriefings are currently archived on the e-ScienceTalk website. These documents could potentially be uploaded and monitored in an archived repository. This would ensure the resource is available to all those who need it, whenever they require it.

3.2.2 GridCafé and e-Science City

GridCafé has been shown to be a long-lasting and sustainable product, having been launched in 2004. The product was initially developed and managed by CERN, before being managed by GridTalk and it is currently being updated during e-ScienceTalk. As GridCafé originated at CERN it has already been shown to be sustainable having been transferred from organisational to project-based international funding. Several investigative strategies could be undertaken to fund this product. Maintenance of the website in terms of updating content is envisioned to be relatively low after the e-ScienceCity is developed. Part of the project's long-term strategy could be to continue to build reciprocal and lasting relationships with supporting organisations, which could eventually lead to sponsorship or co-sponsorship.

If limited funding becomes available, e-ScienceTalk could examine creating plain static versions of the websites that do not use databases/scripts that can be stored indefinitely by a project partner so that the resource remains online in an archive. If we were to pursue this avenue, it would be important to examine ownership, copyright issues, availability, security procedures, digital rights management, content management, domain name registration and administration issues.

3.2.3 GridCast

As with GridCafé, GridCast was originally produced by CERN and therefore has already been shown to be sustainable having been transferred to GridTalk and then e-ScienceTalk. As the site relies on voluntary blogging by people outside the e-ScienceTalk project and building an online community of regular contributors, there is a sustainable model for maintenance in terms of contributions and updates. However, GridCast will still need a moderator to ensure content is up-to-date, relevant and appropriate to the users. In future, we will look into building community links and fostering relationships with online bloggers with the intention of cultivating an organisation to continue supporting the blog either financially or with in-kind support. Currently there are no costs involved in hosting the site, as it is hosted on Blogger.com, although there could be longevity issues as it is run by Google currently.

3.2.4 GridGuide and Real Time Monitor

GridGuide is an innovative and attractive product but its audience is as yet not as well defined as the other e-ScienceTalk products. E-ScienceTalk plans to investigate who the current audience is, and whether there could be links or in-kind support from collaborating project(s) already on the site. As part of the sustainability strategy, we will investigate the technical requirements of the GridGuide, and develop it based on the intended audience's needs and requirements. The RTM has previously received development funding from GridPP, the UK's grid for physics.

3.2.5 iSGTW

iSGTW continues to be a successful product for e-ScienceTalk, and ensuring its long-term sustainability for its loyal subscribers is important. E-ScienceTalk will continue to explore commercial sponsorship and in-kind support from collaborating projects.

Due to its partnership with the Fermi National Laboratory in the US, iSGTW cannot currently accept advertising revenues. In addition, the commercial space covering high performance/supercomputing and grid computing is crowded at the moment, including HPC Wire (hpcwire.com), SupercomputingOnline (supercomputingonline.com) and VizWorld (vizworld.com/science). Often, these publications cover press releases by the larger computing companies such as Intel. Since iSGTW is not funded by the computing industry, we cover different material to these publications, such as the scientists who use these products to further scientific research. Covering these more commercial topics could risk alienating the audience we have built so far. Instead, we plan to explore positioning iSGTW as the preferred channel for the research community and major e-infrastructures in Europe (such as GÉANT, EGI, DEISA/PRACE as well as the ESFRI projects) and in the US (such as OSG and TeraGrid, which is now XSEDE).

We are also looking into contributions of editorial effort from other institutions around the world, including in the Asia-Pacific region. ISGTW continues to nurture a network of unfunded contributors from a wide range of projects.

4 CONCLUSION

In its first year, e-ScienceTalk has used a number of different metrics to measure the impact of its activities. Overall, the impact of each e-ScienceTalk product is very encouraging. We appear to be reaching our attended audiences and providing them with informative content. The quality and performance metrics selected have also been appropriate for determining the project's effectiveness. The quality of metrics is a critical success factor in understanding the effectiveness of a project.

Sustainability is about what lives on after a project ends and how. E-ScienceTalk will develop a sustainability plan for each product at the end of Year 2. This plan will consider the outputs that are most likely to be sustainable in the long term in the context of e-ScienceTalk objectives and the outcomes it envisages. After one year, we can however provide an update to the metrics and some recommendations, based on our impact assessment.

It is clear from feedback that the e-ScienceBriefings are having an impact on their audience, and links with other projects are widening their circulation. With regard to metrics, a more qualitative approach to measuring the influence on the audience would be beneficial. ISGTW continues to be a successful newsletter, and e-ScienceTalk will continue to reevaluate possibilities for commercial sponsorship and in-kind support from collaborating projects. ISGTW exceeded some of its targets in its first year, so we will set new targets for Year 2 and 3 based on these trends that will be set out in more detail in D4.3 *Annual Report on Feedback and Metrics*. For the GridCast blog, we will examine social media trends, and monitor both qualitatively and quantitatively users' interaction with GridCast content. By building community links and encouraging external content generation, GridCast will become more sustainable. The newest additions to the suite of e-ScienceTalk products, Grid Guide and RTM, have sparked interest in the grid amongst politicians, the general public and scientists. During Year 2, e-ScienceTalk will invite users to contribute feedback in order to help further develop its innovative features.

5 REFERENCES

R 1	e-ScienceTalk Description of Work https://documents.egi.eu/document/233
R 2	D4.2 Quality Plan https://documents.egi.eu/document/262
R 3	D4.3 Feedback on GridTalk http://www.gridtalk.org/deliverable/

6 GLOSSARY

ASGC	Academia Sinica Grid Computing http://www.twgrid.org/
CHAIN	Coordination & Harmonisation of Advanced e-Infrastructures http://www.chain-project.eu/
DEISA	Distributed European Infrastructure for Supercomputing Applications http://www.deisa.eu/
e-IRG	e-Infrastructure Reflection Group http://www.e-irg.eu/
EGI	European Grid Infrastructure http://www.egi.eu/
EGI-InSPIRE	European Grid Initiative: Integrated Sustainable Pan-European Infrastructure for Researchers in Europe http://www.egi.eu/projects/egi-inspire/
ESFRI	European Strategy Forum on Research Infrastructures http://ec.europa.eu/research/infrastructures/
OSG	Open Science Grid http://www.opensciencegrid.org/
PRACE	Partnership for Advanced Computing in Europe http://www.prace-project.eu/
XSEDE	Extreme Science and Engineering Discovery Environment http://www.xsede.org/