e-ScienceTalk

10ᵀᴴ E-INFRASTRUCTURE CONCERTATION REPORT

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Abstract

The document describes the 10ᵗʰ e-Infrastructure Concertation meeting which took place in Brussels on 6-7 March 2013.

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1 INTRODUCTION

The EC's e-Infrastructure Concertation Meetings are a series of events that bring together key players in the community who are working towards a long term sustainable e-Infrastructure for scientific research in Europe. The event described in this document was targeted at the e-Infrastructures community in the new Distributed Computing Infrastructures era.

The 10th e-Infrastructure Concertation Meeting, organised in collaboration with the e-ScienceTalk project, took place at The Hotel in Brussels on 6th and 7th March. The programme for the event aimed to further the EC's objective to develop a world-class resource as part of a strategy to achieve European leadership in e-Science. The main aim of the meeting was to bring projects together in order to discuss issues related to the completion of the 7th Framework Programme and the start of an e-infrastructures activity during Horizon 2020 (2014-2020).

The two day meeting brought together over 130 representatives from the e-Infrastructure landscape, policy makers and funding agencies, and looked at the impact and outcomes from the FP7 funding programme for e-Infrastructures. An FP7 Success Story Competition highlighted the best success stories from the FP7 Capacities funding programme in e-Infrastructures in three categories: Excellent Science, Competitive Industries and Better Society. Prizes were awarded to winners and the runners up in each category at the event. Sessions covered impact measurement and metrics, a look ahead to the draft programme and timetable for Horizon2020 and a discussion panel on sustainability of e-Infrastructures.

Delegates commented that the format, content and organisation of the meeting worked well, and it provided an ideal opportunity for networking for the e-Infrastructure community.

2 OPENING PLENARY AND PRIZE GIVING

2.1 Overview

The session opened with a welcome presentation from Kostas Glinos, Head of Unit, CNECT/C1 at the European Commission. The keynote was delivered by Prof Richard Kenway of the University of Edinburgh, "A political vision on e-Infrastructures for Science and Innovation". The session concluded with a summary of "E-science reporting for Europe" by Catherine Gater, coordinator of the e-ScienceTalk project.

2.2 FP7 Success Story Competition

The FP7 Success Story Competition highlighted the best success stories from the FP7 Capacities funding programme in e-Infrastructures.

The organisers of the 10th e-Infrastructure Concertation Meeting invited project leaders of current and former projects, funded through FP7 (2006 – 2013) to submit abstracts highlighting their project's biggest success story.

The Categories
Success stories were invited in the following categories.

Category 1: Excellent science

These project success stories show how the project has raised the level of excellence in Europe's science base. The success story should show how the project supported the best ideas, developed talent within Europe, or provided researchers with access to priority research infrastructure, making Europe an attractive location for the world's best researchers.

Category 2: Competitive industries

Project success stories in this category will show how the project made Europe a more attractive location to invest in research and innovation, by promoting activities where businesses set the agenda. It will have helped innovative SMEs to grow into world-leading companies.

Category 3: Better society

Project success stories will have targeted the policy priorities of the Europe 2020 strategy and addressed major concerns shared by citizens in Europe and elsewhere. Their challenge-based

approach will have brought together resources and knowledge across different fields, technologies and disciplines, including social sciences and the humanities.

2.3 Winners of the FP7 Success Story Competition

Across all the categories, there were 15 entrants to the competition. A jury made up of members of the e-ScienceTalk team, the European Commission and the Editor of iSGTW considered the entrants, and awarded first and second prizes in all three categories. All the entrants of the competition were commended by the jury and will be invited to submit articles to iSGTW based on their success stories.

In each category, the winners were:

Better society
1st Prize: OpenAIRE - Supporting Open Science in Europe
2nd Prize: iMarine - Cool tools and high level experts for fisheries management and knowledge

Competitive industries
1st Prize: PRACE - How e-research infrastructures can catalyse European industrial competitiveness
2nd Prize: SIENA - Standards Success Story for European e-infrastructure Evolution

Excellent science
1st Prize: GÉANT - Driving technology across the digital divide
2nd Prize: WeNMR - Toward full automation of the determination of protein structures by NMR

Natalia Manola of OpenAIRE said, "We are delighted to have won this prize because we feel OpenAIRE is a success story for both the EC's open access policy, and for the open access movement across Europe. OpenAIRE is a special project primarily because of its participatory and truly European flavor. All member states contribute to gathering the EC's research output, and in so doing contribute to stimulating open access policies in their own regions. We have also developed a robust technical infrastructure that provides a flexible, operational system to support the expected growth of OpenAIRE. Our future is optimistic: having established our infrastructure and a growing community, we look to developing services in other valuable areas such as measuring research impact, usage statistics, linking publications to data and possibly to learning material, while reaching out to other European funders."

For iMarine, Donatella Castelli stated, "Someone may be wondering why a success story focused on mobile application, AppliFish, won a prize in a competition dedicated to e-Infrastructures. Really, behind this free mobile application there is a complex data infrastructure, iMarine, which we have been developing for many years. iMarine supports mesh-up, analysis and processing of heterogeneous datasets resulting from the work of many scientists. What makes iMarine unique is its capacity for integrating this vast amount of multi-disciplinary aquatic-related information.

AppliFish now makes this available to everyone as a pocket book of marine knowledge accessible by a commonly used tool such as a mobile."

Stéphane Requena of PRACE added, "It's a great pleasure for us to be one of the winners. This award will foster our motivation to work on engaging industrial users with the PRACE research infrastructure in order to boost European competitiveness. PRACE is working on increasing the use of a leading European infrastructure by all academic and industrial communities and is catalysing technological transfer between academia and industry through Open Innovation projects. We are working on a tailored evangelisation programme called SHAPE (SME HPC Adoption Programme in Europe) which aims to help SMEs to co-design and demonstrate a concrete industrial project on PRACE facilities."

Daniele Lezzi of the SIENA project said, "We are glad to receive this prize that recognises the efforts of SIENA, the first initiative to gather to the same table all the actors involved in the development of e-infrastructure, mobilizing the scientific community on the adoption of open standards through the direct involvement of the SDOs. Officially endorsed by the European Commission as a reference document for all stakeholders by Vice-President Neelie Kroes, the SIENA Roadmap and its Calls for Action represent the project's biggest success story. The SIENA activities are still stimulating interest also through their continued support to the Cloudscape workshops, now a self-sustained event which demonstrates that there is still a need for gathering a like-minded community wanting to share their knowledge and insights."

Regarding GÉANT, Dorte Olesen stated, "It's very pleasing to receive recognition for the project, as it is a result of the collaboration of so many talented and dedicated people, all with a shared vision of providing the most advanced network and associated services. Being selected as a winner of such a prestigious award is testament to that shared vision and effort. GÉANT has brought together all of Europe's NRENs working towards a common goal, which continues to be an impressive achievement. In future, GÉANT will continue its efforts to ensure Europe remains at the heart of the global research village."

Finally, Alexandre Bonvin of WeNMR said, "I am really glad and proud that our project WeNMR has been selected as one of the winners. This is a nice recognition for all our efforts in bringing a new community to make use of grid resources and e-Science solutions. Our user-centric approach shields as much as possible the end user from the technicalities of grid business and provides them with user-friendly, simple solutions. I really think we have a unique position as an intermediate between the e-Infrastructure providers such as the European Grid Infrastructure and the end users, including structural biologists worldwide."

3 IMPACT AND METRICS

3.1 Overview

The panel session included an update on e-Infrastructure impact and metrics by Kostas Glinos and a presentation by Andrea Manieri, coordinator of the ERINA+ project on "Self assessment of the e-Infrastructure project efficiency". Jorge-Andres Sanchez-Papaspiliou, coordinator of the eNventory project presented the European e-Infrastructures Observatory and Fotis Karagiannis, coordinator of the e-FISCAL project outlined the costs of HTC/HPC e-Infrastructures.

3.2 Discussion

Kostas Glinos kicked off the discussion by talking about projects such as ERINA+, e-FISCAL and The European e-Infrastructures Observatory (eNventory), which aim to assess the impact, success and funding structures of other European FP7 e-infrastructure projects. "How will they be sustained?" he asked. Obviously they are useful to the community, said Glinos, but how will they be sustained internationally and what are the appropriate bodies to look after and maintain them?

Bob Jones, head of CERN openlab, picked up on the subject of sustainability in this context and suggested that perhaps a long-term service model, rather than a short-term project model may be better suited as a way of providing such assessment services as the three projects mentioned by Glinos offer. The notion of such a move was welcomed by other participants in the discussion. However, Glinos pointed out that providing such services over the long term was not necessarily the role of the European Commission. Jones also suggested that the EC's assessment tools could perhaps be extended, so that projects are not forced to replicate their efforts when it comes to filling out assessment forms.

Jorge-Andres Sanchez-Papaspiliou agreed with Jones on the issue of shifting towards a service model rather than a project model for long-term assessment of the success or impact of European e-infrastructure projects. He is project inventor of The European e-Infrastructures Observatory, which aims to create a single-entry-point, or "one-stop-shop data warehouse", capable of representing European e-infrastructure benchmarks and achievements. The project seeks to disseminate information through intuitive, interactive and user-friendly visualisation interfaces to allow for progress monitoring and impact assessment of e-infrastructures at both regional and national levels across the European Union and beyond. Sanchez-Papaspiliou also stressed the importance of assessing the impact of projects on a global scale. "We need to compare ourselves to what the US is doing, what China is doing, and what Russia is doing," he said. "This means we need more collaboration with these regions." During the session, Sanchez-Papaspiliou also referred to a white paper and a roadmap released by the project towards the end of last year.

"There is a worrying belief by politicians that if you buy and invest in infrastructure, that creates economic growth," said Mark Parsons of the Edinburgh Parallel Computing Centre. "But, of course,

it's not that act that creates anything at all — it just spends money. The thing that creates the economic growth and develops the new products and services is the scientists and researchers that use that infrastructure."

"I think it's very difficult for the European Commission to measure the real impact of what we do with research infrastructures, because they're actually measuring the wrong people to some extent," added Parsons. "There's been very little real measurement of the outcomes for the people and the organizations using this infrastructure." Parsons also argued that the time-scale across which impact can occur makes things extremely difficult, pointing out that work from a particular project may be picked up and have value many years after a project has finished.

"We have to consider the fact that much of the impact which projects seek to achieve can never be achieved within the short timeframe of a project," said Andrea Manieri, echoing Parson's sentiments. Manieri is the project director of ERINA+, which was set up to assess the socio-economic impact of e-infrastructures and develop an assessment methodology for European e-Infrastructure projects to self-evaluate their own impact. "Impact may happen two, or three, or more years after the end of a project," he argued. "So, it is important to consider the analysis of any metrics over the longer period... both projects and the EC need to carefully address how impact data is used."

However, Glinos reassured the participants that the metrics being discussed are really just for internal use and are not to assess the success of the projects themselves, rather "our own administrative unit's success". He then explained the importance of the metrics in justifying the existence of e-infrastructures at a European level, rather than, say, simply relying on commercial providers or that infrastructure which is provided at a national level.

During the discussion, Glinos also stressed the importance of having tailored metrics by which to judge individual projects, so as to ensure that metrics correspond to the objectives of the project in question. Despite this, he also went on to propose the idea of having some metrics which are common across projects, so that they can easily be compared and conclusions can be drawn.

However, several participants expressed scepticism regarding this suggestion. Erwin Laure, director of the PDC Center for High Performance Computing at the Swedish Royal Institute of Technology, says: "The services that the various projects are providing are so different and have different impact that needs to be measured differently — that is a big challenge that the ERINA+ project has been finding." He argued that it is very difficult to come up with metrics which can be used widely to compare projects with one another. "I think it's a very dangerous route to go down," he said.

Fotis Karagiannis, project director of e-FISCAL, which analyses the costs and cost structures of the European high-throughput and high-performance computing e-Infrastructures, agrees with Laure. "In my experience, it's just not possible to have the same metrics for different projects, because the types of users are different," said Karagiannis. He cites the differing users of the European Middleware initiative versus the GÉANT network, as a good example of this, arguing that this makes direct comparison using any one indicator a futile exercise. During his brief talk, Karagiannis also presented an interesting slide comparing in-house storage solutions with Amazon EC2 cloud storage.

Finally, Steven Newhouse, director of the European Grid Infrastructure (EGI), wrapped up the discussion by proposing the creation of a body to coordinate e-infrastructures in Horizon 2020. "If the European Commission is serious about coordinating e-Infrastructures, they need to think about how to put a body in place to do this, supported by the member states, and that can do things like collation of metrics; long-term development of policy, in a manner similar to what e-IRG has been doing; and provide the long-term coordination of the e-infrastructures."

4 PARALLEL TRACKS

4.1 Track 1: Strengthening the European research capacity through open data e-Infrastructures

Introduction:

Carlos Morais Pires (EC) presented the context of H2020 preparations for research data e-infrastructures. He informed delegates that an on-line public consultation is ongoing until 27 March 2013, to which they are cordially invited to provide feedback [https://ec.europa.eu/digital-agenda/en/content/consultation-research-data-infrastructures-framework-action]

The consultation presents the overall framework for action on scientific data e-infrastructures, as it results from earlier expert consultations and reports (including the Oct. 2010 report 'Riding the Wave' based on the works of the HLG on Scientific Data and the Apr. 2012 report of the G8+O5 Group of Senior Officials on scientific data). In this context, a set of 7 possible domains of action –the so-called 'fiches'- are outlined, namely: 1. Community-support data services; 2. Infrastructure for open access; 3. Storing, managing and preserving research data; 4. Discovery and provenance of research data; 5. Towards global data e-infrastructures; 6. Authentication and authorization e-infrastructures; 7. Skills and new professions for research data.

A diagram classifies these actions under 3 categories - Common data services; Community-supported e-infrastructures; and Users-, coupled with 2 transversal layers - Data curation; and Trust.

Finally, Carlos Morais Pires briefed delegates about the importance of a new entity, the Research Data Alliance (RDA), which will serve as a forum for advancing and streamlining data-related initiatives, and which will be formally launched on 18-19 March 2013 in Gothenburg [http://rd-alliance.org]

Presentations:
There were 5 short presentations from representatives of individual projects/networks:

Reza Salek, EMBL, from the project COSMOS which works on coordination of standards in metabolomics, stressed the importance of making data exchangeable by building standards for file formats, tools, etc., since large data sets face similar needs for standards.

Dave Roberts, Natural History Museum, London from the project VIBRANT developing scratchpads for biodiversity on-line publications, presented a set of 12 recommendations as they stem from the White paper on Biodiversity informatics which he co-authored with Alex Hardisty, Cardiff University from the project BioVeL. These recommendations highlight among others, the need for open data, multi-scale data encoding, marketing/awareness of constituency services, persistent identifiers,

author identifiers, 3rd party authentication, data fit for purpose, and the development of a new generation of observational data infrastructure in view of big data.

Tiziana Ferrari of EGI stressed the problem of exchanging and storing large amounts of data, and the need to ensure one system of data and computing e-infrastructure services. She then presented a list of recommended actions where EC support should be channelled: integration of operations of data, HPC, HTC; integration of innovative operational tools; technical integration of user-driven, common data services; and software innovation.

Jos Kleinjans, Univ. of Maastricht, coordinator of the diXA project which works on integrating toxicology and other databases for better chemical safety, highlighted that societal needs should drive the coordination of data.

Lajos Balint of the NIIF Institute - Hungarnet, presented some certain evolutionary trends in data infrastructures and data-driven research. He noted among others, the decreasing role of advance annotation (metadata) and the need to ensure openness of contents and standards for automatic annotation. Data-driven science in the future will most likely deal with multi-faceted objects and complex relations, while the evolution of data processing and e-Science may lead to reconfigurable goals by data, depending on discoveries.

Discussion:

In the ensuing discussion, a number of participants intervened commenting on some of the domains tackled by the 'fiches', suggesting possible improvements on specific issues addressed by them, and/or offering more general, cross-cutting feedback.

Overall, it was felt that there is a need for more integration, both across constituencies/scientific domains and operations as well as with research infrastructure activities. However, it was also understood that for this to happen, more dialogue is needed and the readiness of communities to engage should be ensured. One delegate even suggested that a similar model used in other domains of e-infrastructure (like EGI, PRACE or GEANT) could be considered for data infrastructures. The need to look for commonalities across domains – de-siloeing- would be useful in leveraging also RDA.

There was a question about the share of the actions which are bottom-up, since most of the proposed fiches seem to concern top-down driven issues. It was stressed that the community-driven e-infrastructures which are at the centre of this initiative and which encompass elements from all the other fiches, serve exactly this purpose.

The remark was made that the proposed governance structure for RDA does not include 'the data factories' which are cited in the fiches, and in this context it was suggested that ESFRI could perhaps be considered to be also represented in RDA.

There were finally a few specific remarks concerning possible improvements, such as: that software should be mentioned more often in the fiches; that the 'long-tail' of science should be represented in

the fiches; that a more global 'flavour' should be reflected in the actions proposed since science is global and there are worldwide interests for actions.

Conclusion:

Delegates were thanked for their feedback and active participation in the session, and were reminded to consider joining the RDA working groups and to contribute to the EC public consultation on data by 27 March 2013 which will help to consolidate the European strategy and address some of the points raised above.

4.2 Track 2: Developing the computational infrastructure of 21st century science

The title for track 2 was 'developing the computational infrastructure of 21st century science'. The session was hosted by Aniyan Varghese of the EC, who set out the themes to address for the sesssion:

- Definition of computational infrastructure (CI)
- Supply side
- Demand side/end user
- Role and interlinking of data, connectivity, computation, etc.
- Roadmap
- 'Marketing'
- Sustainability

Leonardo Flores Añover, also of the EC, opened the session with a short presentation. He spoke about the importance of HPC in Horizon 2020 and the important issue of linking supply and demand..

Flores then went on to speak about HPC, which is the specific topic he is responsible for within the e-Infrastructure unit. He spoke about the EC's European HPC strategy combining the following three elements:

- Developing the next generation of HPC, towards exascale in 2020-2022
- Providing access to the best supercomputing facilities and services to both industry and academia
- Achieving excellence in HPC applications

He explained that the stakeholders are in contact with the EC in view to set up a public-private partnership (PPP) to achieve the above goals. He also stressed the importance of training, education and skills in ensuring these goals are achieved and wrapped up by saying it is paramount that SMEs are supplied with the necessary expertise.

Following this presentation, there was a very lively discussion, in which the main protagonists were Philippe Ricoux from Total, Richard Kenway and Steven Newhouse.

Referring specifically to the European HPC strategy, Kenway had this to say: "This looks great, but there are concerns that PCP (Pre-commercial Procurement) could potentially conflict with scientific objectives, in terms of having access to the best international facilities. We need to be clear about what the objectives are if we are going to make PCP succeed."

Several attendees, led by Steven Newhouse then went on to pick up on some confusion caused by the use of terminology during the HPC presentation. The presentation focused on HPC – supercomputing, and intentionally did not cover other computational tools such as grids, clouds, etc. However, Kenway said that he is worried that the community often ties itself up in knots with questions like what exactly we mean by HPC.

Definitions and some of the difficulty of the terminology involved was a theme picked up by Ivan Kondov of the Karlsruhe Institute of Technology. He gave the first of several 3-minute, one-slide presentations during the session. He spoke primarily about the marketing of computational infrastructure.

He said this: "We have to understand demand in the language of end-users, because they don't necessarily know what HPC is. Researchers may not be aware of what e-infrastructures are available to them. Physicists, for example may not know about service-orientated architecture."

Federico Ruggieri of CHAIN-REDS then spoke about computing infrastructure for R&E. He said this: "Public institutions are frequently receiving project-driven funding, which means it is difficult to fund long-term contracts with commercial cloud providers."

He then continued speaking about issues related to commercial cloud offerings, saying the following: "Long-term preservation of data still has many issues to be addressed. Projects can easily have funding gaps and the question is what happens to your resources and your data when there's such a gap? Resource sharing is also an issue if institutions get services from different providers." Ruggieri argued that the needs of scientists are high-end and always evolving, whereas commercial clouds are not always able to evolve capacity in this way.

Robert Lovas of the International Desktop Grid Federation (IGDF) then gave a short presentation in which he argued that members of the public do not usually know what it is that "scientists in their ivory towers" are really doing. Consequently, he says, when members of the public wish to contribute their computers to volunteer desktop grids, they want to know exactly what it is they are researching. This is where marketing and communication is important, he says.

Arndt Bode of PRACE then gave a short presentation talking about who pays for e-infrastructures and their use. "E-infrastructures have never been a free lunch, there's always been someone paying for it," he said during his brief presentation. PRACE, and who uses it, was also discussed by Jens Wiegand of The Cyprus Institute, who claimed that his research had shown that the bottom 40% of countries (by usage of PRACE) use less than 1% of PRACE resources combined.

Peter Kacsuk then followed this up by giving a brief talk about the SCI-BUS, SHIWA and ER-Flow projects. Simon Taylor, from Brunel University and eI4Africa also highlighted the importance of public engagement and outreach in a short presentation.

Erwin Laure from PDC and KTH gave a talk about the importance of the human side of e-infrastructure, a topic which was returned to on several occasions throughout the session. In particular, Laure had this to say: "Europe requires a tiered model of e-infrastructure, to ensure geographic and thematic coverage, but there is a clear trend towards consolidation – fewer but bigger data centres to exploit economies of scale. E-infrastructure needs to be paired with expert team (centres of excellence) that support scientists in their use of HPC and support HPC software improvement (scaling, features, etc.) These centres need to be distributed and accessible to the scientists."

Later during the session, when the topic of discussion had moved back on to sustainability, Laure also highlighted that human resources play a key role here: "Sustainability is also about the people with the expertise, not just the hardware that makes up the e-infrastructure."

Steven Newhouse also spoke during the session to talk about who does and doesn't use the e-infrastructures provided, with particular reference to 'the long tail' in terms of scientific users. "The regimented structure you get in high-energy physics and PRACE just doesn't exist in the long-tail," he said. "We need software to deal with this challenge."

"Over the last 20 years, we've been guilty of too-often adopting a one-size-fits-all approach…, but this just suited the high-energy physics community," added Newhouse. He went on to argue that clouds probably offer the best way of addressing this particular issue for the future.

Newhouse was later asked by Helmut Heller of Globus what exactly the point is of sharing resources through continent-wide grid initiatives when every NGI tries to get as much as possible — often more than they put in, he suggests — from EGI. He basically suggests it's a tragedy of the commons situation. Newhouse rejects this, saying that the NGIs really do not see it this way; they see it as contributing to a service. Some NGIs use as much resources as they put in and some use more and some use less, he says, adding that all of these stats are, in fact, available on the EGI website.

During the discussion at the very end of the session, Kenway made a couple more interesting points, with regards to developing the next generation of e-infrastructures. Basically, he was very keen to stress the importance of the public sector playing a role in driving e-infrastructure forward. "On the demand side — from the point of view of science — we think globally, so from the supply side we need to think globally, too," he said.

Finally, a few other points discussed during track 2 included…

- The importance of seamless integration between desktop, cloud, PRACE, EGI facilities, etc. The general feeling was that the scientific community wants to do science, access data,

access a range of facilities in an integrated environment and that they are basically not bothered where the computing power comes from.

- It was argued that the role of the citizen scientist should be reflected in definitions of computational infrastructure. Following on from this, the concept of 'c-infrastructure' (i.e. community infrastructure) was mentioned in terms of being a way to significantly raise the profile of e-infrastructures to get people involved via citizen science projects.

- The role of PPP was discussed further towards the end of the session, as was the need to build human capital to support e-infrastructures and to build applications for 100,000s end users. Again, the idea of dedicated centres of excellence in computing was returned to.

4.3 Track 3: Creating the European communication commons for knowledge economies

The basis of discussion was organised around the conclusions of the GÉANT expert Group in four directions: Support knowledge communities, support the growth of these communities, push the state-of-the-art of the communication commons and reorganize to cope with the constantly changing environment.

Based on those preliminary ideas exposed by the Chair Jean-Luc Dorel, an open discussion took place involving most of the present participants coming from NRENs, Dante and users which is summarised below.

1. Innovation

Innovation was considered as a key component in future programs. One key issue identified is related to the relative weakness of the European ICT industry when it comes to networking and that expectation and ambition should be at the right level.

In the future open calls, industry could be incentivised to be part of the response to the call. SME programs could be also leveraged as part of the ambition to work with industry.

It was commented that test-beds could be a way to involve industry. This is going to happen in GN3plus and although interest is unclear some early discussions with large ICT players seem promising.

In addition, access to data could lead to side effect in terms of innovation (big data).

Tackling the digital divide and promoting innovative should be pursued at the same time. Separating out these activities too much brings the risk of having to build bridges between the two.

The experiment in GN3plus with its open call for innovation needs to be carefully followed for its results. Without much feedback yet, it is difficult to reflect further, however one call combining both infrastructure/digital divide and innovation should work (as it was the case in previous GÉANT calls).

2. Cloud

Helix Nebula is considered as a large scale "test-bed" for cloud collaboration; GÉANT is participating and this is well accepted by large commercial providers as an ice-breaker between parties; there are some fears (public money competing for same customers) however the project shows that is becoming acceptable.

Helix nebula is indeed more about new business model; which is viewed as very important; questions for the community include: how to insert and what funding model?

3. Federation of identity

A presentation was made by Merete Badger – coordinator of the Virtual campus hub project. This project and community (energy engineering education) is one of the first community efforts to use federated identity on pan-European scale. As such it addresses issues: maturity and trust on the concept of identity federation at country level, funding models, and technical issues such as group management.

The participants stressed the importance of identity federation and edugain in the future of GÉANT.

4. Eastern countries

One participant raised the digital divide issue for eastern countries sharing that in many cases universities are not "computerised" and don't manage services such as eduroam; there was a plea for a trade-off between advancing state of the art vs geographical coverage. A number of requirements on the network such as Multi-domain/Multi vendors are too complex to manage. There is a risk that some countries are left alone; there has been effort in the past in the region not always successful. There is considerable amount of work going on in Eastern Europe however there is a scalability issue going at university level. Some problems should be solved at the national level. Finally some local efforts (e.g. Romania-Moldova cross-border) could be leveraged.

5. Central vs local effort

A plea was made that the focus should not be on forming a central structure and plan, which is then pushed out to countries. The approach to follow should be the one that is already working at the local level, including cross-border. Then, there should be a supplementary effort to make this solution work at European level. A more internet-like growth pattern has better chance of working (pull vs push) and results in cost reduction due to the use of local resources. There is agreement that cross-border could help assuming NRENs are willing to offer infrastructure. In general cost reduction should be pursued.

6. Funding

Some ideas and questions regarding the future calls were also discussed e.g. the use of SME instruments for innovation. There is a possibility of structural funds being used for modernising university infrastructure. There is an example from the US of regional grouping of universities, but this presents issues e.g. in relation with accreditation.

Interaction between EC instruments is welcomed e.g. africaconnect following FEAST study; DEVCO programs including "framework programme" to do studies. There is a horizontal action in H2020 related to human capital and the audience questioned what this would mean in practice, whether it would be a separately funded call and how can the REN community access it?

It was mentioned that some of DEVCO global connectivity would need to be insourced. There is an overall concern expressed that the increasing effort should be matched by funding.

7. Product cycle

An issue remains with transferring local effort into GÉANT for protocol development. The call should support competing ideas and also sustainable solutions. Important to this question is the product cycle and making appropriate business decisions at each step. In any case, users should be part of the process.

4.4   Track 4: Developing digital environments for large-scale collaboration

Wim Jansen introduced the track, "Developing digital environments for large-scale collaboration" by handing over to the first speaker to provide a general introduction:

Matthew Dovey from JISC, UK, talked about 'Virtual research environments; virtual research collaborations; virtual research contexts'.

What do we mean by virtual research environments? How virtual is virtual? What kinds of research? What is the scope? Researchers want to focus on research rather than worrying about all of this. 'Concept of VRE as a platform' – but it's not something you can get in a box; it's an ecosystem'; 'need holistic approach' is sometimes mooted, but actually this may be too complex. VREs originally focused on tools, now, there is a greater focus on identity.

JISC innovation funding for VREs since 2004: VREs1–4.

> VRE1: 2004–2007; 15 projects with a focus on technologies and interoperability; experimental, diverse designs. Developmental approach=> standalone solutions.

> VRE2: 2007–2009; Photogenic demonstrators to attract new communities; more expansive – user- and research-practice-focused. 2 examples: MyExperiment ('FaceBook for scientists'; share workflows), VERA (archaeological tools 'dug up that day'; made a new digital pen).

VRE3: 2009-2011, 10 projects with a focus on embedding technologies – cancer imaging; Ami – virtual lab-book for chemists combining RFID tags on reagent bottles, voice recognition; BlogMyData – blog tools for collaborating on experiments.

VRE4: 2011–; 16+ projects, rapid innovation, focus on community building, user-centric. ID management. Twitter analysis tools. Batmobile – mobile phone app for recording sounds of bats for species identification.

By the time we get to 2013, we have an undefinition – defined really by whatever the current requirements are. VREs are empowering researchers to use technology, but there is also a lot of codesign between researchers and technologists. There is a focus on context, rather than environment, e.g. cloud – which provides self-service, flexibility, accessibility and portability. Looking at VREs as a product of the concept of science as an open enterprise, we have the three pillars of software, results and data. "Software is the modern language of science," says Ed Siedel. VREs can enable discourse and capture the essence of scientific discussion. We can be a way to gauge impact.

Wim Jensen introduced the next speaker as an example of how Horizon 2020 integrates different communities.

Roberto Barbera, Chain, INFN-Catania:
VREs in 2020 are the path to technology uptake which look at 'bridging the gap'. Barbara gave an example of the evolution of distributed computing, from the mainframe in the 60s/70s, to the 1980s cluster, and shifting focus in the 90s and 00s to grid and cloud. What about the 'global grid'? In fact, there are interoperability problems due to incompatible middleware.

The eResearch 2020 study identified this lack of standards as a potential learning block. There are several magnitudes fewer users of grid than of the entire internet, for instance and a need to improve the perception of ease of use. Smart phones are very easy to use – distributed computing needs to be the same. Catania science gateway framework has 12 use cases, 4 in production, with a focus on embedded apps plus 1000+ users. We also need a training strategy, a portfolio of new apps, a marketplace for apps and gateways. One solution is standardising middleware using SAGA. The vision is for e-infrastructures to do better, fast work. How can this be achieved? You can look at optimising the scientific method workflow: cloud and grid can take some of the workload away from the scientist. Areas such as metadata auto-tagging, data preservation, and the semantic web are also key.

Antonella Fresa next presented a talk about the digital cultural heritage roadmap. She invited the group to look at what has already happened. E-infrastructures and virtual communities have entered a dialogue with DC-NET and INDICATE. Data infrastructures can now realise data faster, and the use of e-infrastructures and VREs will contribute to standardisation. Researchers are now able to process not only numerical data, but images, video and audio files. The data deluge now demands more from VREs and VRCs. Cost reduction can be achieved by avoiding parallel activities in different EC funded projects, and allowing more investment in a higher throughput of data rather than an expensive human workforce. We need lots of small, homogenous communities with competencies in

technology. Antonella said we should exploit opportunities with VREs/VRCs to establish an EU platform of integrated services to preserve digital cultural heritage. The EU platform combines flexible organisation and a technical framework for interoperability. Federal collaboration of cultural institutions for humanities research will provide a cost-effective use of e-infrastructures for preserving data. There was a comment from the audience agreeing with need for homogeneous communities: "Community building can result in difficulty defining what they need from IT."

Next, **Robert Bentley** of Cassis (cassis-vo.eu) talked about interoperability with the example of the HELIO project. Heliophysics is event-driven. Several types of effect depend on causal phenomenon and many other factors – emission type; location of observation (altitude effects: most measurements high up so mainly solar, but this is not the case lower down in the stratosphere).

HELIO has a service-oriented architecture. Tasks are split into components/building blocks, which can be used independently or as part of a workflow. Examples of tasks include coordinate translations (many different standards in use), storage, processing, plotting and semantic mapping. These capabilities are being developed as part of a toolkit and can be categorised as search, to retrieve identify. Having a service-oriented architecture has its advantages, especially this modular nature. The method of implementation can also be hidden from the user.

HELIO extends beyond solar system physics. For example, being able to discriminate between change in heating from solar output and from the greenhouse effect allows more accurate climate modelling. It is also important for marine biologists to decipher strange weather patterns.

Wim Jensen summed up: "A paradigm change is only recognised once it's done."

Next, **Claudio Luchinat** from the Florence Magnetic Resonance Centre spoke. This was opened in 1994 to EU researchers. Since 2010 there have been various projects in the area of NMR for structural biology, such as BioNMR, WeNMR, EastNMR. How to get in touch with IT? Need a bottom-up approach, but it can be difficult to get consensus. INSTRUCT is integrating biological infrastructures (integrated structural biology infrastructure). They link up with other projects such as SPIDIA, Chance and BioMedBridges. Metabolomics is very cheap, as is NMR, so there is a need to integrate data more. Cosmos provides coordination of standards in metabolomics, helping to work toward a common ground and standardised ontologies, which will enable free and open flow of data. The Da Vinci biobank, for example, stores samples and complete associated spectral data – there is an average 10^7 data points (~=bytes) per sample.

Suggestions: Experimental infrastructures require good communications to help build communities and strengthen links between e-infrastructures. Need to keep budgets separate, but increase coordination of activities among the e-infrastructures.

Georgia Tzenu from EuroRis.net then talked about an EU network of national contact points for research infrastructures, in order to help guarantee effective implementation of research infrastructures and promote the unique resources and services they provide. They are creating a virtual environment where e-infrastructures can include this information for others to browse. This

builds a digital environment for collaboration, a 'stakeholder forum'. http://observatory.euroris-net.eu. This information is provided to the whole community. This includes a standardised data model, CERIF – which is the EU-recommended data format, maintained by EuroCRIS. There are also synergies with MERIL and OpenAIRE.

The next steps are to address challenges and develop impact. EuroRis-NET+ has found that semantically-rich information is crucial. There is a need to exploit infrastructures through common interfaces and APIs to work toward improving sustainability, providing services and components for the entire research lifecycle. Again, embedding into the routine workflows of scientists to contextually automate metadata tagging is a focus.

Next, **Rob van der Krogt** talked about EDGISCOPE – not an infrastructure, but a scoping project. The objective is to define and prepare e-infrastructures for earth science e.g. geological surveys, and to act on questions from society, policy and industry. Themes can be split into on- and off-shore, geohazards, groundwater etc. The reason we need information about Earth crust composition is to track location of rare earth elements for telecommunications and networking. Despite there being 20,000 earth scientists in Europe, if this information is needed, usually they refer to the US geological survey. The EC has effectively told the community in EU that they 'need to organise themselves better'.

Resolution for data can vary wildly, from very local, to national or international. The dimensionality of data can be 2d, 3d, 4d, 5d (spatiotemporal with uncertainties embedded). Uncertainty is important, see trials of Italian geologists blamed for deaths during the 2012 earthquake. Geology is important for all of the Grand Challenges (thanks to the need to know fuel location, soil and so on). Data acquisition comes from multiple sources. Also considered were ERNET, ERIC and to extend EGS.

The floor discussion considered business models post 2020. "Setting up successful e-infrastructures requires organising your community at all levels."

Next, **Fulvio Marrelli** from ESA talked about SCIDIP-ES. He offered a critique of Neelie Kroes' comment: 'Message today is data is gold; we have a huge mine and we have to start digging.' There is a problem because gold and data are not similar:

> Gold=precious because it is rare; does not combines with other elements
> Data=precious when we have a lot of it; worth more combined with other data

Animations of polar icecap rely on data from 5 or 6 projects stretching back decades. There is a need to preserve all the data. For example, SEASAT. ESA and MASA cooperate with their respective data holdings. When data is being preserved under best effort, tracking provenance becomes an issue. The data also needs to be understandable by other communities, which is another challenge.

The LDTP working group has made significant achievements in the earth observational domain, with agreements and policies. We need to develop and deploy generic, sustainable digital data preservation methods, considered from two aspects: technical (from advances in research, tools) and

the domain-specific aspect (harmonisation of preservation approaches). A volcanologist should be able to access and understand climate data. This will require continuous actions to make data readable and keep it accessible.

Following on, **Vince Smith** from the UK Natural History Museum reminded us of the global nature of science and universal Grand Challenges. VREs take data from the local level to the global and grand challenge level. The NHM hosts Scratchpad, and online tool for VREs, providing modular, flexible architecture, with a core of pluggable services that can be augmented. The NHM provides VREs with incentives: citation; aggregation (reminding users they're part of a larger project); data publishing infrastructure and curation.

Rossen Apostolov from KTH Scalalife talked about thematic competence centres. One user case mentioned was protein simulation. PRACE, EGI, cloud (commercial/academic) all have a part to play. They have a high degree of interaction with communities: based on demand, they are providing access to 6 molecular dynamics packages including GROMACS and Dalton. VREs provide competence centres – knowledge-based organisations that connect pre-existing material. In this sense, communications are again highlighted for importance; examples include mailing lists, forums.

Next, **Brook Schofield** from Terena talked about Elcira, a project working to bring EduRoam and EduGain to Latin America. EduGain is much smaller than EduRoam (even in the EU) – so ID federation has not caught on as a concept (yet). Elcira is trying to use the greater interest in EduRoam to bootstrap interest for EduGain. SAML provides the 'glue' for web single-sign-on. It's important to remember that scientists' desire to share is an important catalyst for interfederation.

Dan Bolser from Transplant – informatics research for plants – talked about how VREs are being developed for the plant life sciences community. One driver is the growing impact of climate change and of man-made (agriculture-catalysed) severe weather (e.g. 'dustbowl' from cereal over-farming in depression era US). Another driver is the cost of data 'going through the flow'. Transplant has a modular project architecture – e.g. WP9 is to develop an archive of plant genomic data. They plan to Integrate this with the ENSEMBL genome browser.

Challenges are very similar to many other projects. How do we give the 99% of users not using distributed computing access? Perhaps something like a cloud-based modular infrastructure, or an 'App Store' for large-scale analysis would be attractive. Other approaches might look at wikis/forums/open source/'stacks'. One question asked from the floor was 'How about software version control for data?'

Finally, **Alex Hardisty** from BioVEL spoke about how the project creates a powerful set of data processing tools for biodiversity research. The focus is on identification and logging of data. Their workflow uses web services and they have a group of resource and data providers (Lifewatch, BioVEL, GBIF, COL, EBI), and resource providers (EUDAT, EGI, PRACE, commercial cloud). So far, the community only has about 10% of the services a scientist truly need. There is a need to take a 'decadal' view of biodiversity informatics.

The Grand Challenge here is to allow available data to be brought into a coordinated coupled model environment, capable of addressing questions relating to our use of the environment. The challenge is to capture the variety, distinctiveness and complexity of all life on Earth. Users need user-configurable, integrative, flexible e-science environments with predictive models across multiple scales.

The floor discussion/summing up concluded:

- Need to build user confidence. All projects face the challenge of sustainability post-project end. We need a translation pipeline to encourage instances of adoption and to recognise contributions outside of academia.
- More upskilling/handholding can help bring products to market.
- Flexible e-science environments with standardised building blocks and workflows are useful.
- Recognise there are different types of VREs (general purpose; specialised; single objective) – all have different needs.
- Need to have benefits that are fairly immediately obvious to users.
- Need to connect data so that we have global datasets.

5   SUSTAINABILITY OF E-INFRASTRUCTURES

5.1   Overview

This session looked at the future plans and sustainability of e-science infrastructures and projects under the next Framework Programme (Horizon 2020) which will run from 2014 to 2020. The panellists included Prof. Anne Trefethen, Oxford e-Research Centre, Prof. Juni Palmgren, Swedish Research Council, Prof. Arndt Bode, Leibniz Supercomputing Centre and Mr. Steven Robertshaw, xKavate Knowledge Mining Ltd.

5.2   Discussion

The panel discussion started out by addressing the following questions:
- What do we mean by e-infrastructure sustainability?
- What are the possible business models?
- What is the guidance for funding agencies?

Sustainability is having the confidence that a certain service will persist in the future with no concern that it will disappear. There are different models: some people see infrastructure as a free public utility, others see users paying for it.

Prof Anne Trefethen, Oxford e-Research Centre:
- Sustainability should be seen in a broader sense, it is not only about infrastructure but about also organisations and software.
- Drawing a comparison with the need for standards and interoperability, the European Rail Traffic Management System (ERTMS) was initiated by EC to improve cross-border interoperability; but in UK there is no alignment in signalling.
- A single injection of money in e-infrastructures will not solve the problem. We need coordination across discipline boundaries and across international boundaries; coordination across e-infrastructure ecosystems; governance models that allow appropriate decision making and mixed ownership models,

Juni Palmgren, Swedish Research Council
- Vision of e-infrastructures: empower research communities through ubiquitous, trusted and easy access to services for data computation, communication and collaboration work.
- Should e-infrastructures be judged as an integral part of research projects/infrastructure? Researchers have two queues for funding: one for the science, one for the infrastructure. They should be coupled and judged together with the research infrastructure/project.
- Do we need basic funding for e-infrastructures? Yes, for salaries and innovation but the proportion of funding remains to be seen.

- The key is co-funding. In Sweden, there is a meta-centre composed of six nodes who bid for equipment, which is good for cost efficiency.
- Co-funding from research projects is important as well; projects are moving to a full cost model.
- How to scale up? Not all countries need all levels of storage, when working on regional infrastructures the problem is how to channel the money appropriately.

Arndt Bode, PRACE
- PRACE has been in operation since 2010 and has established a strategy working group to work on sustainability.
- 4 billions of CPU hours have been granted since 2010 and distributed by scientists, not by the centres.
- Tier-0 are co-funded at EC level; T-1 at national level; T2/T-3 paid by the local provinces.
- PRACE 2.0 wants to meet EU ambitions, wants to work with ETP for HPC
- PRACE 2.0 principles: solidarities, reflecting on the countries that cannot afford it
- Aim at creating centres of excellence

Steven Robertshaw, xKavate Knowledge Mining Ltd

xKavate take a pragmatic view of sustainability, they compete by submitting project proposals, and generating results. Some results represent exploitation but exploitation is not necessarily about going into commercial production. Some results go into other projects, e.g. e-infrastructure as academic exploitation.

Need to tackle:
- policies: why we do what we do?
- funding: anti-competitive practices and non-academic access
- strategies: develop a real strategy, assess risks vs. opportunities
- how to lobby for policy changes that fit the expected business models
- marketing is opposite to dissemination

The discussion included the point that we need a variety of service providers to be more reliable and also the capability to adapt to a changing environment.

Kostas Glinos said that sustainability is ensuring confidence that after few years, the organisation/service will still be there; e.g., CERN. Users should also be confident that there will be help to move to the next generation or technology without this being disruptive. The quality of management of infrastructure is very important.

Arndt Bode added that we have human resource sustainability issues, e.g. in Germany funding installation is in projects for 5 – 6 years. We can employ people for a limited time-span, and then we lose skills. That is why the Gauss centre for computing is investigating with government to fund permanent positions; such people are required by the industry, so they then move out.

Steven Newhouse, EGI spoke about the long tail, the further you get away from the core community, the harder is to sell the message that the infrastructure will still be there. The value added services should be added on top of minimal funding. Reaching out and disseminating results to the long tail requires extra effort however. If the service provider is a data preservation service, then the sustainability becomes an interesting question. In the case of a big data hadoop service, then users care less as they can move from one provider to another without much risk. Why does CERN persist? It manages to provide excellence results over time; a key feature of infrastructure persistence is to be able to continue to produce excellent results. There is an issue with scalability. If you build infrastructure up to a European level, then you need clear arguments for top level funding e.g., collaboration, special resources. Options for funding include: 1) central budget from EC, 2) national countries contributing; 3) e-infrastructure as overhead cost for projects.

Bob Jones, CERN asked whether when services become commodities, should we go to the market or still have these as a public service?

Other points raised on funding models during the discussion included:

- Looking for top-down solutions to sustainability in an area where evolution is bottom up is difficult, there is the need to create an environment where things flourish, given confidence about funding streams.
- The public sector should be ahead of the market as part of the economic case to do it; directions come from developers as bottom-up business risk is connected to sustainability.
- Business Models: one approach is to provide basic funding to sustain infrastructure, and the rest of the money comes from the users who receive grants as part of their project proposal.
- For a special-purpose service that cannot be found on the market, then it is more essential to cover larger part of the cost.
- Giving money to the long tail can stimulate better communication between supply/demand, for example not asking users what they want, but what their problems are.
- Question about sustainability of data: government pays to make data available in a form that can be reused.
- Notion of risk-based research is considered a lot in countries such as Sweden.
- Budget for high-risk or high-guarantee oriented projects could be separate.
- If e-Infrastructures want to attract commercial funding, the constraints on research projects need to be understood.

Finally, the discussions on coordination of e-Infrastructures included a call for the e-infrastructures to interoperate. One suggestion is to create one single organisation, fund the basic services and give money to users so they can create integrated services themselves. For this you need the right stakeholders in the coordinating body that listen to the community. This should include the voice of large industry – currently we are missing the coordination between industry and public funded organisations. The EC sees the need for overarching coordination, and in H2020 there will need to be an advisory board for research infrastructure that includes e-infrastructures.

6 CONFERENCE DISSEMINATION

Along with the logistical organisation of these meetings e-ScienceTalk put together a communications strategy to highlight the success story competition, project presentations and discussions coming out of the meeting. This included the following:

- The event was publicised on the e-ScienceTalk events page http://www.e-sciencetalk.org/events.php.
- The slides from the meeting were available at http://indico.egi.eu/indico/conferenceDisplay.py?confId=1217
- The e-ScienceTalk team, plus colleagues covered the event on our blog, GridCast, through written posts and web videos, www.gridcast.org
- The tag #concertation was chosen for use on Twitter, so delegates and followers could track news from the conference online, www.twitter.com/e_scitalk and www.twitter.com/isgtw
- The success story competition was announced via a number of channels:
  - ISGTW: http://www.isgtw.org/spotlight/e-infrastructure-success-stories
  - Alphagalileo: http://www.alphagalileo.org/ViewItem.aspx?ItemId=129121&CultureCode=en
  - EGI: http://www.egi.eu/news-and-media/newsfeed/news_2013_0012.html
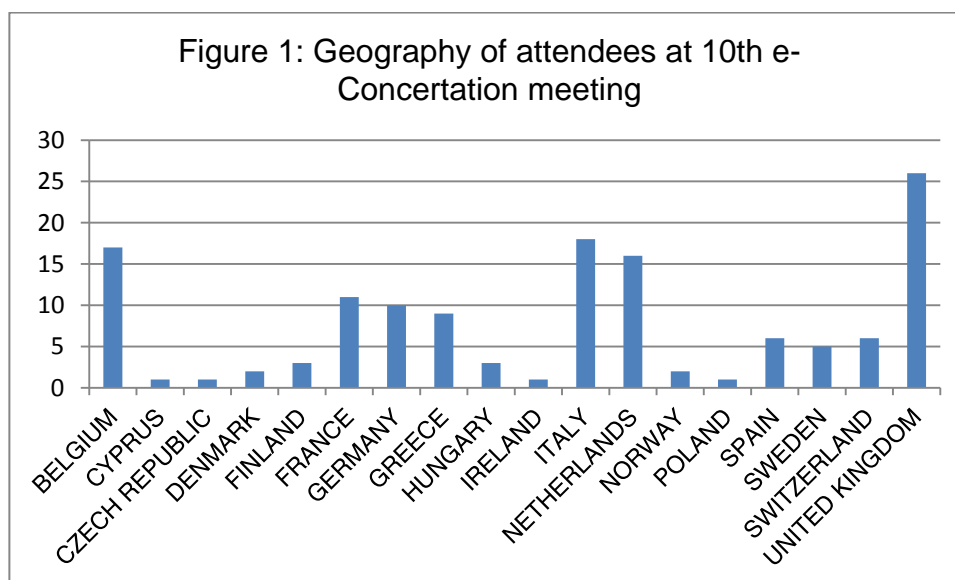 - Cordis: http://cordis.europa.eu/wire/index.cfm

7 STATISTICS

The 10th e-Infrastructure Concertation meeting was attended by 132 delegates. This is a slight drop since the 9th meeting, but six people who had registered were unable to attend. Attendees included representatives from the EC, as well as a number of EC funded projects. A total of eighty projects were represented at the meeting.

Over the course of the two days, there were 51 visits to the e-ScienceTalk page, and 212 visits to the GridCast blog. Andrew Purcell's spotlight in iSGTW ("E-infrastructure success stories"[1]) received 5 'Likes' on Facebook, and 201 page views (147 unique pageviews) with average time of four minutes and thirteen seconds spent reading the content.

E-ScienceTalk tweeted 49 times during the two day period attracting a number of influential followers. On analysis, many delegates are already followers of @e_scitalk. New followers included Morten Brugard, a project manager of an EU project about entrepreneurship (@mbrugar, 17,522 followers), Inge VanNieuwerburghm, coordinator of Digital projects, Helmut Heller and Virtual Campus Hub. There were also several retweets.

The greatest number of attendees were from the UK (26) followed by Italy (18), Belgium (17) and the Netherlands (16). Before the meeting, 61 people registered for track 1, 33 for track 2, 19 for track 3 and 22 for track 4. However, track 4 proved more popular during the meeting itself.
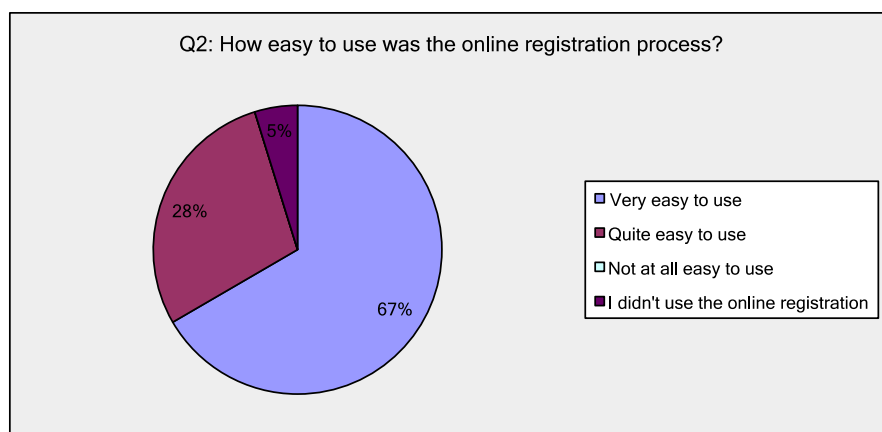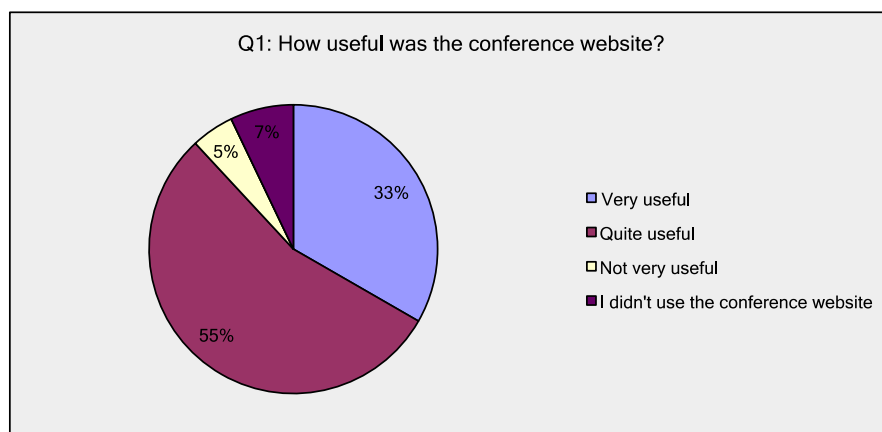

Figure 1: Geography of attendees at 10th e-Concertation meeting

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[1] http://www.isgtw.org/spotlight/e-infrastructure-success-stories

8 CONFERENCE FEEDBACK

In addition to the statistics gathered in the previous section, an online feedback survey was launched on 11 March to gather feedback about the event. The results of the survey, closed on 15 March, are presented below:

Summary:
- 88% percent of respondents said they found the registration/conference website useful. Around 7% had not used the site, and only one person said it was not useful but gave no reasons (see piece chart below).
- 100% of people who used the online registration process found it easy to use (see pie chart below).

Q1: How useful was the conference website?

7%
5%
33%
55%

- Very useful
- Quite useful
- Not very useful
- I didn't use the conference website

Q2: How easy to use was the online registration process?

5%
28%
67%

- Very easy to use
- Quite easy to use
- Not at all easy to use
- I didn't use the online registration

Q3: Please let us know your feedback on the conference catering i.e. the coffee breaks and the lunchtime catering on 7th March
- Most comments were very positive especially about the food. Adjectives used were: 'excellent', 'great', 'very good', 'tasty' 'appropriate' etc.

- However, 3 or 4 people did say that the coffee station was overcrowded.

Q4: Do you have any comments on the conference format (i.e. content, materials, length)?

- *"I found the length and format appropriate for such an event"*
- *"Professionalism of certain presentations"*
- *"It was very appropriate"*
- *"The format was good this year - focused and efficient."*
- *"Excellent format giving an opportunity for everybody to speak. Also the keynotes were very interesting."*
- *"The conference format was optimal for general horizontal discussion and exchange on e-Infrastructures plus a slot with focused thematic panels."*
- *"The best session was the final session on sustainability because it featured enough open discussion and was moderated."*

There was some criticism of the parallel sessions and time keeping. Below are some of the constructive/useful suggestions from respondents.

- *In addition to the plenary sessions (most of them have been very interesting) I would appreciate a time frame for splinter discussions on specific hot topics (to be defined possibly in advance) as for example the interconnection and complementarity between different infrastructures.*
- *I would have preferred to have the materials (presentations) in advance, but that is always a problem. Having the materials prior to the conference might improve the interactions and discussions during the event.*
- *The final plenary panel was successful (surprisingly) and seemed to have more interaction than many of the parallel sessions. Adding more time for such content might be interesting, but the quality of chairing/facilitation will be crucial.*
- *Would try to provide at least an outline or hand-outs for some of the presentations - easier to follow and interact*

Q6: Do you have any comments on the conference venue, for example the size and layout of the rooms, how easy it was to get to the venue, acoustics or equipment?

Comments were positive (see below).
- *Everything was very well thought through and organized. Thank you!*
- *The venue was convenient as it was central in Brussels, easy to get to and well signed.*

However, some respondents said there may not have been enough power cables, bathrooms, seats etc., but all commented that they really enjoyed the fantastic panoramic views from the hotel.

Q7: Many people accessed the social media for e-ScienceTalk. The e_scitalk twitter account was the most popular.

Q7: Did you use any of the social networking and communication channels at the event?
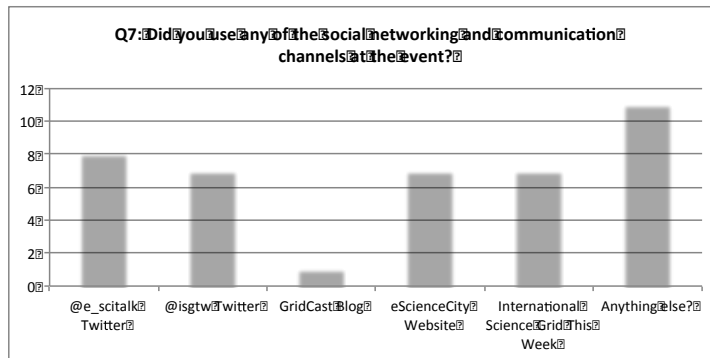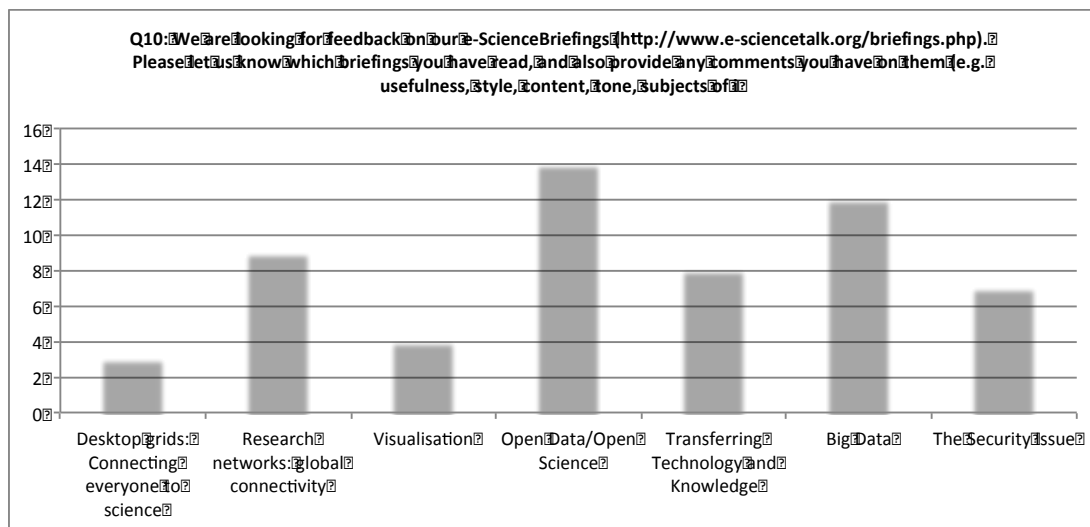
Q8: What do you find most useful about e-ScienceTalk's communications?

This was an open-ended question, which several people responded to. Below are their comments. Six people requested a subscription to iSGTW and fifteen people wanted to subscribe to the e-ScienceBriefings mailing list (Q9).

- *Timely topics*
- *Networking and information about different FP7 projects*
- *Delivering short but 'to the point' content*
- *Being kept informed about the breadth of activity.*
- *Very straightforward and understandable even with no specific technical background*
- *Briefings*
- *iSGTW!*

Q10: We asked if people had read certain e-ScienceBriefings.

The Open Data/Open Science briefing was the most popular.

Q10: We are looking for feedback on our e-ScienceBriefings (http://www.e-sciencetalk.org/briefings.php). Please let us know which briefings you have read, and also provide any comments you have on them (e.g. usefulness, style, content, tone, subjects of i

9 CONCLUSIONS

The 10th e-Infrastructure Concertation meeting was well-received and well attended, given that it was not co-located with another event, as for the 9th e-Infrastructure Concertation meeting in 2011 which was co-located with the EGI Technical Forum 2011 in Lyon. This year's event provided an ideal opportunity for e-Infrastructure projects to learn more about each other, to network and build relationships that could lead to future collaborations within Horizon2020.

Feedback from the meeting indicates that the organisation of the event went smoothly and delegates were happy with the venue, organisation, programme and catering. The social media channels and e-ScienceTalk publications such as the Briefings and iSGTW were well-known and appreciated. E-ScienceTalk will aim to ensure future events that it is involved in have similar advantages.