



The e-IRG Blue Paper

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Blue Paper History

- Invitation from ESFRI
- October 2009 eIRG Meeting
- November 2009 eIRG Meeting
 - Leif Laaksonen – Chairman, conclusions and overall coordination
 - Mirco Mazzucato - European e-Infrastructure as a service
 - Malcolm Atkinson/ Kimmo Koski – Data-infrastructure
 - Fiorenzo Scaroni – AAI
 - Lajos Bálint – Virtual research communities
 - Gabriele von Voigt – HPC
 - Mirco Mazzucato – Grid/Cloud/Virtualization
 - Norbert Meyer – Remote instrumentation
 - Kees Neggers – Networking
 - Rosette Vandenbroucke/Sverker Holmgren–ESFRI requirements
 - Support from e-IRGSP2
- December 2009
 - Neil Geddes asked to chair group
- Blue paper delivered to ESFRI beginning of July 2010
 - Available from the e-IRG [www](http://www.e-irg.eu) site.

e-IRG Blue Paper 2010 for ESFRI

- Scope:
 - Summarises ways **ESFRI Research Infrastructures** and their **users** can exploit e-Infrastructure services to satisfy their needs.
 - Provides an **assessment of Europe's e-Infrastructure service portfolio**, and identifies the **opportunities** and **challenges** involved.
- Topics
 - Generic issues:
 - Business and Governance Models, Digital Divide, New user induction, Cost effectiveness, Green IT, Software issues
 - Towards service orientation
 - Network, computing, middleware, data
 - e-Infrastructure Service Areas:
 - Networking, Authentication, Authorisation and Accounting, Grid, Cloud and Virtualisation, High Performance Computing, Remote Access and Remote Instrumentation, Data infrastructures and persistent storage, Virtual Research Communities and collaboration, Generic Issues

Executive Summary - 1

- Benefits from a common e-Infrastructure:
 - avoiding diverting resources for research into ad-hoc basic ICT service provision
 - avoiding unnecessary duplication in provision of ICT solutions
 - leveraging existing expertise and experience
 - facilitating the integration and interoperation of different communities and RI
 - broadening engagement across Europe and internationally
 - encouraging and supporting open research and innovation

Executive Summary - 2

- Key themes to encourage the exploitation of fit-for-purpose common e-infrastructure:
 - There must be co-evolution of Research Infrastructures, e-Infrastructure and user requirements.
 - Collaboration between RI and e-Infrastructures should be actively supported at all levels, to their mutual benefit.
 - service-oriented delivery models
 - ICT technology will continue to develop rapidly.
 - E-Infrastructure tools and resources must be developed in a global context
- Recommendations on specific areas...

(3.1) Networking

- Recognise new RI as ‘innovation engines’ in research network evolution, and encourage them to engage with this role by defining, testing and using new networking services
- Encourage RI to participate in networking coordination bodies to secure an ongoing exchange of information on the development of advanced networking services
- Encourage advanced users and research network providers to ensure that national and European authorities support appropriate governance and financial models

(3.2) Authentication, Authorisation and Accounting

- Accelerate the process of the continued integration of different identity technologies, through supporting the active collaboration between the International Grid Trust Federation (IGTF), GÉANT and relevant European and international working groups.
- Continue to improve national infrastructures and their alignment with agreed standard procedures for identity management and assurance.
- Require that, wherever possible, future pan-European e-Infrastructure and ESFRI RI projects define their access control policies and mechanisms from the beginning, in accordance with the standards and best practices adopted by the community.

(3.3) Grid, Cloud and Virtualisation

- Promote collaboration among grid and cloud infrastructure providers and users to raise awareness of the range of available technologies and how to best use them
- Encourage RI to inform the National Grid Initiatives (NGIs) and EGI.eu of their technical requirements and provide feedback on existing and future services, with a focus on requirements and services rather than technologies
- Support organisational models that encourage the RI community to engage with the management structures of the NGIs, EGI, and related activities such as the European Middleware Initiative (EMI) and Initiative for Globus in Europe (IGE)

(3.4) High Performance Computing

- Improve understanding of the specific requirements of the research community (the “science case”), and the broader economic needs in terms of driving future requirements for the largest HPC systems
- Support the development of a balanced HPC ecosystem that integrates resources at a range of scales matched to user requirements
- Promote specific enabling activities, such as scalable software development and user training, to ensure efficient usage of HPC resources

(3.5) Remote Access and Remote Instrumentation

- Encourage RI and sensor networks to connect to the wider networked world using standard interfaces, either directly, or indirectly, through the existing e-Infrastructure
- Formalise the responsibility of European RI to support remote users
- Champion the user- and broader societal perspective for development and deployment of new RI and sensor networks

(3.6) Data infrastructures and persistent storage

- Identify and promote common (long-term) data-related services across different RI
- Encourage, through policy and facilitation, community practises and standards that assist researchers in exploiting multiple data resources, within and across disciplines
- Raise awareness of the responsibilities set by the Toronto statement, INSPIRE directive (Infrastructure for Spatial Information in Europe), and similar initiatives

(3.7) Virtual Research Communities (VRC) and collaboration

- Build VRCs by fully exploiting the benefits of the ERA and integrating a stimulating mixture of the involved organisational entities. Multidisciplinary and/or PPP VRCs are recommended
- Ensure VRC developments are incremental and application- and challenge-led
- Exploit the educational and innovation potential of VRC tools developed and deployed by research communities.

(3.8) Generic Issues

- **Business and Governance Models** [and the need for users] to play a bigger role in the governance and management of the e-Infrastructures
 - On the strategic level.
 - On the operational level
 - On the level of standardization
- **Digital Divide** issues and role of EC co-funding
- **New User Induction** and training
- **Cost Effectiveness** .
- **Green IT**
- **Software** exploiting the multi-cored and multi-CPU Competitiveness

Blue Paper Conclusions

- Co-evolution of Research Infrastructures, e-Infrastructure and user requirements result in sustained innovation
- Active and direct user engagement between RIs and e-Infrastructures
- Internationalisation of research promotes the global harmonisation and joint development of e-Infrastructure services
- Utilisation of available services: Collaboration should be facilitated by the emerging focus on service-oriented delivery models
- Encourage engagement across user, developer and provider communities in e-Infrastructures across research disciplines
- Address the barriers through broad policy level and user engagement

Next steps and lessons learnt

- Strong commitments from the e-IRG to produce the “Blue Paper” for ESFRI demonstrates availability of e-IRG for co-operation.
 - “Blue Paper” was seen as a great opportunity!
- The common findings stemming from the “Blue Paper” need to be transformed into actions supporting the ESFRI Roadmap.
 - ESFRI and e-IRG engaging in implementation of the Blue Paper.
- The collaboration between ESFRI and the e-IRG forums should be strengthened for example through stronger ESFRI participation in preparing the regular e-IRG documents.
 - The BP served also part of the background of the next e-IRG White Paper.
- The next EC call(s) are critical for the deployment of user centric and service based RIs.
 - Experiences are to be used to align user and service provider approaches.

Thank you!

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