e-IRG White Paper 2021

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e-IRGSP6

e-IRG
e-Infrastructure Reflection Group

e-Infrastructure Reflection Group (e-IRG)

- A self-regulated and independent **policy advisory body**
  - Operates on **consensus**-based decision-making;
  - it decides when, where and what it will discuss
- e-IRG advises national authorities and the EC on electronic Infrastructures (**e-Infrastructures**)
  - Networking-, Computing-, Data Infrastructures and related services (middleware/AAI, software, tools, etc.)
  - On national and international initiatives of EU significance

http://e-irg.eu/bylaws

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e-IRG Mission and Vision

Vision:

- ***To facilitate integration*** *in the area of EU* ***e-Infrastructures and connected services****, within and between Member States, at the EU level and globally*

Mission:

- *To* ***support*** *both* ***coherent, innovative and strategic European e-Infrastructure policy-making for convergent and sustainable e-Infrastructure services***

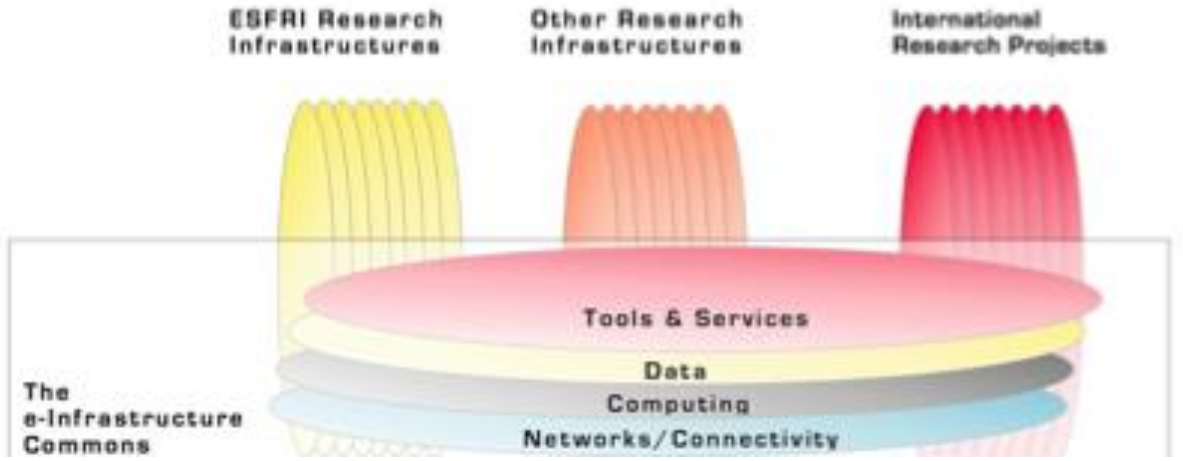
http://e-irg.eu/about https://zenodo.org/record/5567014

The e-IRG e-Infrastructure Commons → Foundation of EOSC

e-IRG e-Infrastructure Commons

(e-IRG Roadmap 2012 -> e-IRG White Paper 2013 -> e-IRG Roadmap 2016)

The e-Infrastructure Commons can be defined as the integrated living ecosystem of resources and services (along with its policies and governance) that is open, user friendly and accessible to European researchers and scientists, and continuously adapts to the changing requirements of research and science.



e-IRG Roadmap 2016

Two recommendations are directed at national governments and funding agencies. They should reinforce their efforts to:

- *embrace e-Infrastructure coordination **at the national level** and build strong national e-Infrastructure building blocks, enabling coherent and efficient participation in European efforts, especially in alignment with the FAIR principles concerning data and services*
- *together analyze and evaluate their national e-Infrastructure funding and governance mechanisms, identify best practices, and provide input to the development of the European e-Infrastructure landscape*

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Competitive Council conclusions

On EOSC (2018): *"AGREES that the EOSC model should be based on a pan-EU* ***federation of data infrastructures****, in order to be flexible and adaptable to changing needs of the stakeholders;*

ENCOURAGES ***Member States*** *to invite their relevant communities, such as* ***e-infrastructures, research infrastructures****, Research Funding Organisations (RFO's) and Research Performing Organisations (RPO's), to* ***get organized*** *so as to prepare them for connection to the EOSC and*

CALLS ON the EC to make optimal use of ongoing projects, existing expertise and knowledge available via existing initiatives, such as ***ESFRI, eIRG, GO FAIR*** *and others;"*

On the new ERA (2020): encourages the EC and the Member States/Associated Countries ***"to increase the level of national and European coordination, in particular on research infrastructures and e-infrastructures".***

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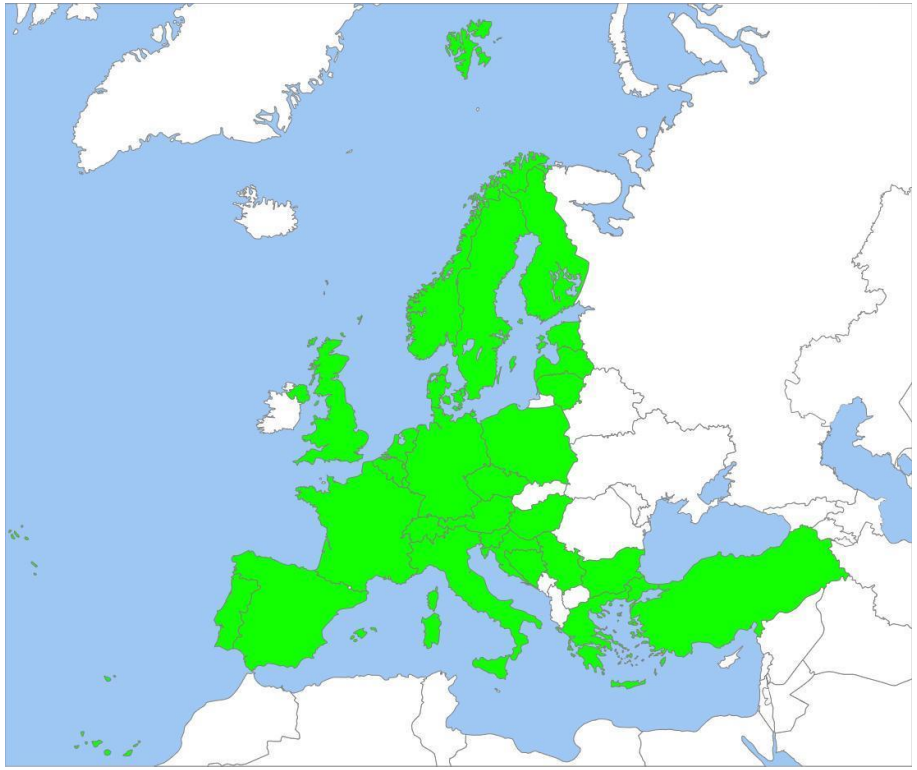
National Nodes – Getting organised; how far are we?

In response to the Council Conclusions: e-IRG report published in **June 2019**



Based on analysis of the responses by **28 countries** on questionnaire with three sets of questions

http://e-irg.eu/catalogue/eirg-1006 https://zenodo.org/record/3608075

e-IRG White Paper 2021

- *Title (for multiple topics): Vision for an inclusive and holistic e-Infrastructure ecosystem for the European Research Area*
  Resilient and flexible e-Infrastructures that serve federation and data interoperability
- Topic 1: *Good practices of coordination and collaboration within and across e-Infrastructures and thematic research infrastructures*
  - *Current topic – to be finalised at the end of this month*
- *Topic 2: Realisation and enhancement of partnerships in the e-Infrastructure landscape covering the full spectrum, including GEANT, EOSC, EuroHPC*
  - *Next topic – expected to start the work in November 2021*

e-IRG White Paper 2021 - Topic 1

The White Paper 2021 1st topic main message:

- **Follows-up the work from the e-IRG National Nodes document**
- **Coordination is continuously needed at national level among all players**
  - Both among generic (horizontal) e-Infrastructure providers
  - Across generic (horizontal) and thematic (vertical) RI providers
- ***Coordination should be expanded within and across countries***
  - *At **institutional** level*
  - *At **regional** level*
  - *At **EU level (**already treated at multiple fora, but only within an area, e.g. GEANT, EOSC, EuroHPC)*
  - *Coordination across GEANT, EOSC, EuroHPC (& their funding instruments) is part of the 2nd topic*

White Paper scope, process and structure

- *Scope:*
  - *Present a set of paradigms at **institutional, national, and regional level**, showcasing either integral and holistic e-Infrastructure views or highlighting specific elements of e-Infrastructure coordination*
- *Process:*
  - *It is **NOT** an outcome of yet another questionnaire to all EU countries, rather a proactive response from some countries who came forward providing their experiences that may be helpful for others*
  - *Still, a set of **guiding questions** was prepared,*
  - *The good practices are thus **not considered complete or exhaustive***
- *Structure:*
  - *Main analysis part (~20 pages)*
  - *Annexes (not the same structure, as one size does not fit all around EU)*
    - *Participating institutions, countries, regions*

Analysis (1) – Paradigms at ..

- **Institutional level**: Chalmers University eCommons (Sweden)
- **National level**: Austria: The Austrian EOSC Mandated Organisation/The EOSC Support Office
  - Croatia: Croatian Open Science Cloud (HR-OOZ)
  - Denmark: Danish eInfrastructure Collaboration (DeIC)
  - France: National Open Science Plan, AI for humanity, Committee for the coordination of Digital Services and Infrastructures (CoSIN), Committee on Open Science (CoSO), ..
  - Germany: National Research Data Infrastructure (NFDI)
  - Greece: National Open Science Plan, HELIX National Data Service (ATHENA/GRNET)
  - Hungary: KIFÜ, ELKH and other initiatives
  - Italy: GARR, CINECA, Italian Computing and Data Infrastructure (ICDI)
  - Netherlands: SURF Portugal: FCT, INCoDe 2030, INCD, Spain: Spanish Network of Supercomputing (RES), ICTS, Spanish network for e-Science and IBERGRID
- **Regional level**: Nordic (NeIC, NordForsk) and IBERGRID

Analysis (2) – Coordination patterns overview

Coordination approaches/patterns/models

1. A holistic e-Infrastructure Commons approach at institutional level (Chalmers)
2. National e-Infrastructure and Open Science coordination approaches: a combination of bottom-up and top-down
3. From virtual (distributed) coordination institutions to fully integrated (centralised) institutions (legal entities)
4. Coordination influence by the national Research Infrastructure Roadmap: from light to strong
5. Regional (cross-country) coordination (Nordic, Iber)
6. Open Science plans at national and also institutional level

Analysis (3a) – In more detail..

Institutional eCommons approach:

→ **Good practice:** organize a **single hub** for researchers at institutional level for accessing resources/services and interfacing with national, EU, and international initiatives

→ The formalisation of processes for such a single hub integrating all e-Infrastructure components can act as a paradigm for other institutions

Example: Chalmers University eCommons, Sweden

National coordination and combination of top-down and bottom-up

- **"One-size does not fit all"** across EU → up to each country to adopt suitable approaches
- Recommendation: the national ecosystem is based on a **"chain of command":**
  - **→ i. e. institutional, (federal-regional) national, (cross-country regional), European interactions**
- National providers/structures should be **trustable and robust** → Sentiment of **ownership**!
- Examples: Austrian EOSC mandated organisation, NFDI (Germany), ICDI (Italy)-HR-OOZ (Croatia),..

Analysis (3b) – In more detail..

From virtual (distributed) institutions to physical (centralised) e-Infrastructure institutions (i.e. legal entities):

- Virtual (distributed) vs physical (centralised), depends on the specificities of the country
- In early phases, a **virtual** model may be more appropriate to distribute the know-how
- In later stages a **centralised** model may be more appropriate reducing overheads and frictions

  Examples: DeIC (Denmark), SURF (Netherlands), GRNET (Greece)

Coordination influence by the national Research Infrastructure Roadmap

- National RI roadmaps can play a significant role in **coordinating** the national research ecosystem
- The national RI roadmap records the **landscape** and contributes to **avoid of duplication** of efforts
- Also promotes **coordination** among generic (horizontal) e-Infrastructures & vertical (thematic) RIs
  - via the inclusion of the so-called RI electronic needs - "**eNeeds**", inspired by the ESFRI Roadmap process
  - Examples: France, Poland, Netherlands, Sweden…

Analysis (3c) – In more detail..

Coordination influence by the national Research Infrastructure Roadmap (cont'd)

- eNeeds can be either fulfilled by **horizontal e-Infrastructures** or by a dedicated **thematic e-infrastructure** or by a **mixed** approach

→ **Good practice**: A **mixed model of funding** both horizontal and thematic infrastructures

- which **incentivise** both thematic RIs and horizontal providers to **optimize** service development/provisioning!

→ **Good practice**: **national roadmaps calls include eNeeds questions** as **obligatory** ones

- so that coordination is **reinforced!**

→ **Good practice**: **alignment of national process with the ESFRI**

- at the level of timeline, but also at the level of content and questions!

Analysis (3c) – In more detail..

Regional (cross-country) coordination

- Coordination across countries is rather bounded, may take form of collaboration only
  - → **funding and access mainly at national level**
- Joint pooling of real resources at central location, (e.g. regional or EU) an exception
  - → In such cases cross-country coordination is required

Open Science plans/roadmaps

→ **Good practice:** Creation of a national plan/roadmap for Open Science

- E.g. via related Task Force among major stakeholders in the country
- Each country encouraged to develop own national OS roadmap
  - based on country's particularities at national and possibly institutional level
- It may be possible to combine the national plan for Open Science with national roadmap for RIs

Conclusions and next steps

- More examples needed at institutional level (following Chalmers one)
- Coordination is needed at national level (NOSCs)-**several paradigms!**
  - Among e-Infrastructure providers & across generic and thematic providers
- Regional/cross-country level coordination is still challenging!

→ *Federation chain is essential (institutional/national/regional/EU)*

- ***Current White Paper topic to be finalised at this end of this month!***
- At EU level coordination is needed among all main players (i.e. GEANT, EOSC, EuroHPC)
  - **e-IRG to work on this in the next topic starting in November!**

Thank you!

- Questions?

- Twitter: @eirgeu, #eIRG
- Vimeo: e-IRG channel, 100+ e-IRG videos (interviews, presentations)
- Zenodo: All recent e-IRG publications uploaded

www.e-irg.eu