Introduction to Sustainability
(WP2-NA1)

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and the Sustainability WG
The ENES Research Infrastructure (ENES-RI)

**HPC**
- EsiWACE HPC user service

**Climate Models and Tools**
- NEMO
- SI3
- OASIS
- XIOS
- Cylc

**Data services**
- ESGF
- Compute services
- TNA platforms
- IPCC DDC
- Climate4Impact
- User Support

**Services for providers**
- Data Request
- CF
- PID
- Citation
- Errata
- ESDOC

**Evaluation and data analysis**
- ESMValTool
- CDO

**Downstream data services**
- Access for Copernicus
- Services linked to EOSC (ECAS platform)

Core services analysed in the technical scoping

Architecture to be coordinated with other WPs

The IS-ENES3 project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 824084
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Background on sustainability

Objective: build an infrastructure that guarantees long-term services to the ENES community

- Scientific Scoping
- Technical Scoping
- Legal Screening
- Governance Options

Sustainability WG

Scoping Phase

Design Phase

Implementation Phase

Collapse Options
Merge/Consolidate
Identify Foundations

Candidate Proposal

Agree Governance and Finances

Tailoring and Implementation
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Legal screening – status from Summer 2019

Current options
- Letter of Intent/Letter of Commitment
- Memorandum of Understanding
- Consortium Agreement
- AISBL, Belgian Law (e.g. EUFAR, PRACE, SeaDataNet)
- Dutch foundation (EGI)
- ERIC

Aspects being considered
- Legal entity
- Binding agreement
- Duration
- Signatory parties
- Minimum number and nationality of partners
- Membership modalities imposed by the agreement
- Statutory seat / headquarters location
- Governance implications
- Access to EU funding scheme as one entity/partner
- Timeline to establish (necessary stages)
... etc...

Next steps
- Steering committee shall decide on a short list of possible options
- Short list of options to be discussed with legal departments at institutional level

Governance
- IS-ENES Stakeholder Board will be set-up at the end of the scientific scoping phase
- Will depend to some extent on the legal option chosen

Full table available: https://drive.google.com/file/d/1ypP-vV8ibTgqHQd5JHqoJBssRo8E0l7Q/view?usp=sharing
## Technical scoping: ENES-RI as of March 2020

<table>
<thead>
<tr>
<th>Service Classification</th>
<th>Service Names</th>
<th>Availability</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote at infrastructure sites</td>
<td>ESGF data service</td>
<td>24/7 SLA</td>
<td>Inst. + Nat. + EU</td>
</tr>
<tr>
<td></td>
<td>Compute service, IPCC-DDC</td>
<td>24/7 Best Effort</td>
<td>Inst. + Nat. + EU</td>
</tr>
<tr>
<td></td>
<td>Errata service, ES-DOC, SYnda data replication, C4i portal</td>
<td>24/7 Best Effort</td>
<td>Inst. + EU</td>
</tr>
<tr>
<td></td>
<td>Citation service, PID service</td>
<td>24/7 Best Effort</td>
<td>Inst.</td>
</tr>
<tr>
<td>Data management</td>
<td>Data request service</td>
<td>24/7 Best Effort</td>
<td>Inst. + Nat. + EU</td>
</tr>
<tr>
<td></td>
<td>CF convention support</td>
<td>Best Effort</td>
<td>Inst. + EU</td>
</tr>
<tr>
<td>Provision of software</td>
<td>Cylc</td>
<td>24/7 Best Effort</td>
<td>Inst.</td>
</tr>
<tr>
<td></td>
<td>OASIS, XIOS</td>
<td>Best Effort</td>
<td>Inst. + EU</td>
</tr>
<tr>
<td></td>
<td>CDO</td>
<td>Best Effort</td>
<td>Inst.</td>
</tr>
<tr>
<td></td>
<td>ESMVal</td>
<td>Best Effort</td>
<td>Nat. + EU</td>
</tr>
</tbody>
</table>

Technical Scoping Synthesis Report: https://docs.google.com/document/d/1BM9uIAvia_5rjOoWrJq5FAh02-ITFL1Q_TfIN_T9wZ0/edit?ts=5e7254ef
Technical scoping: ENES-RI as of March 2020

HPC and Tools
- Provision of software with download and local usage.
  - Operates on a best effort basis.
Funding: mainly institutional and European.
Sustainability: depends on the engagement of persons and the leading institute(s).

ENES-CDI
- Remote end user services and ESGF supporting services.
  - Operates on a 24/7 best effort basis, have availability commitments against ESGF.
- Data management services (CF conventions and data request)
  - Operate on a 24/7 best effort basis
Funding: institutional, national and European.
Sustainability: depends on institutional engagement and on a continuous stream of project money.

Operations
Funding: no direct funding for operational services nor collection of service fees from users.
Sustainability: problematic for ENES-RI sustainability because institutional engagement is connected to synergy effects, and project money is for development and improvement, but not for operations.
Scientific scoping - consultations

40 people consulted with most participants from Modelling and Data Users communities

Awareness
- Very little awareness of the services provided by the ENES-RI except for OASIS, XIOS, ESGF, ESMValTool and NEMO.

Dependencies
- Significant number of users are dependent on OASIS, XIOS, ESGF, ESMValTool and NEMO.
- Many other dependencies raised by less users per service.

Involvement in IS / Software development projects
- Most users are involved in such projects across more than one European institution.

Pros and Cons of sharing tools
- Main pros: gain of time / efficiency, better service quality, better inter-comparability of data...
- Main cons: less responsive to institutional needs, creates dependencies, decreases diversity...

What is missing in the current European IS
- Needs more information / communication, a common governance (with single focus) to help addressing the issue of sustainability.
- Importance to keep bottom-up approach when looking for IS solutions.

Scient. Consult. Synthesis Report: https://docs.google.com/document/d/1avo20wICDrvm6BDwVwXDBEdWrXRlQmJUraZVzQqp4_w/edit?usp=sharing
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Scientific scoping - next steps

- Sustainability Steering Committee
  - SJ, BNL, ML, FA
- Sustainability Working Group
- Setup IS-ENES Stakeholder Assembly
  - Goal: Brainstorming on what do we want to sustain and how?
  - Method: Webinars in breaking groups focused on smaller domains
- Co-organised with ESIWACE
- SMBC Analysis
- Scientific Consultation Analysis
- HPC services Webinar
- Models and Tools Webinar
- Data Webinar
- Downstream data services Webinar
- Evaluation Webinar
- Scientific Scoping Workshop (autumn 2020)
  - What infrastructure have we got to sustain?
  - Goal: Tangible proposals for domains to be sustained
  - Time scale: after IS-ENES3
- IS-ENES Stakeholders Board
  - Community Infrastructure Foresight Workshop (2021)
    - What infrastructure does the science need?
    - Time scale: for the next decade
  - IS-ENES Stakeholder Board Meeting (Specific proposals to be approved)

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Summary

Current status

Completed:
- Technical scoping
- Scientific consultations

Ongoing:
- Legal screening: short-list to be done and submitted to legal departments
- Scientific scoping: domain brainstorming webinars in preparation

Next steps

- Scientific scoping workshop (autumn 2020)
- Set-up IS-ENES Stakeholders Board (end 2020)
If you are interested in joining the Sustainability group, please email me and I will add you to the Slack channel!

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