Towards the Sustainability of the ENES Research Infrastructure

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ENES Research Infrastructure

ESiWACE

IS-ENES

Models, Tools and HPC

Community Services for
- *Code optimisation*
- Model Usage
- *HPC Training*

Technical softwares
- OASIS, XIOS, Cylc (Current and *Future*)
- *ESDM, JDMA, S3Netcdf, ...*

Supporting scientific software development:
- Models: NEMO, *IFS ICON, EC-EARTH,* SI3 ...

Community Networking
- *Technical Futures*
- *Industry Liaison*
- *HPC Grand Challenge*
- Infrastructure Strategy

Data Services and Data Systems

Data & Information Services for
- Climate Modellers
- Users of Information from Climate Models (including Climate4Impact Portal)

Downstream data service support
- Supporting C3S
- Service linkage to EOSC (ECAS platform)
- IPCC-DDC

European Earth System Grid Federation Fabric
- Climate Data Node Operations Team
- Supporting CMIP, CORDEX & more
- Software Maintenance and Development
- User Support   -   Future Architecture
- Data statistics

Services for data providers and data users

Standards and Software
- Supporting Users of CF, ESDOC, Climate Indices
- CMIP Data request, CF standards management and software systems

Contributing Services
- ESDOC, Errata, citation, and PID website and web services

International Representation
- e.g. WGCM/ WIP

Scientific Evaluation and Data Analysis

Analysis Tools and Libraries:
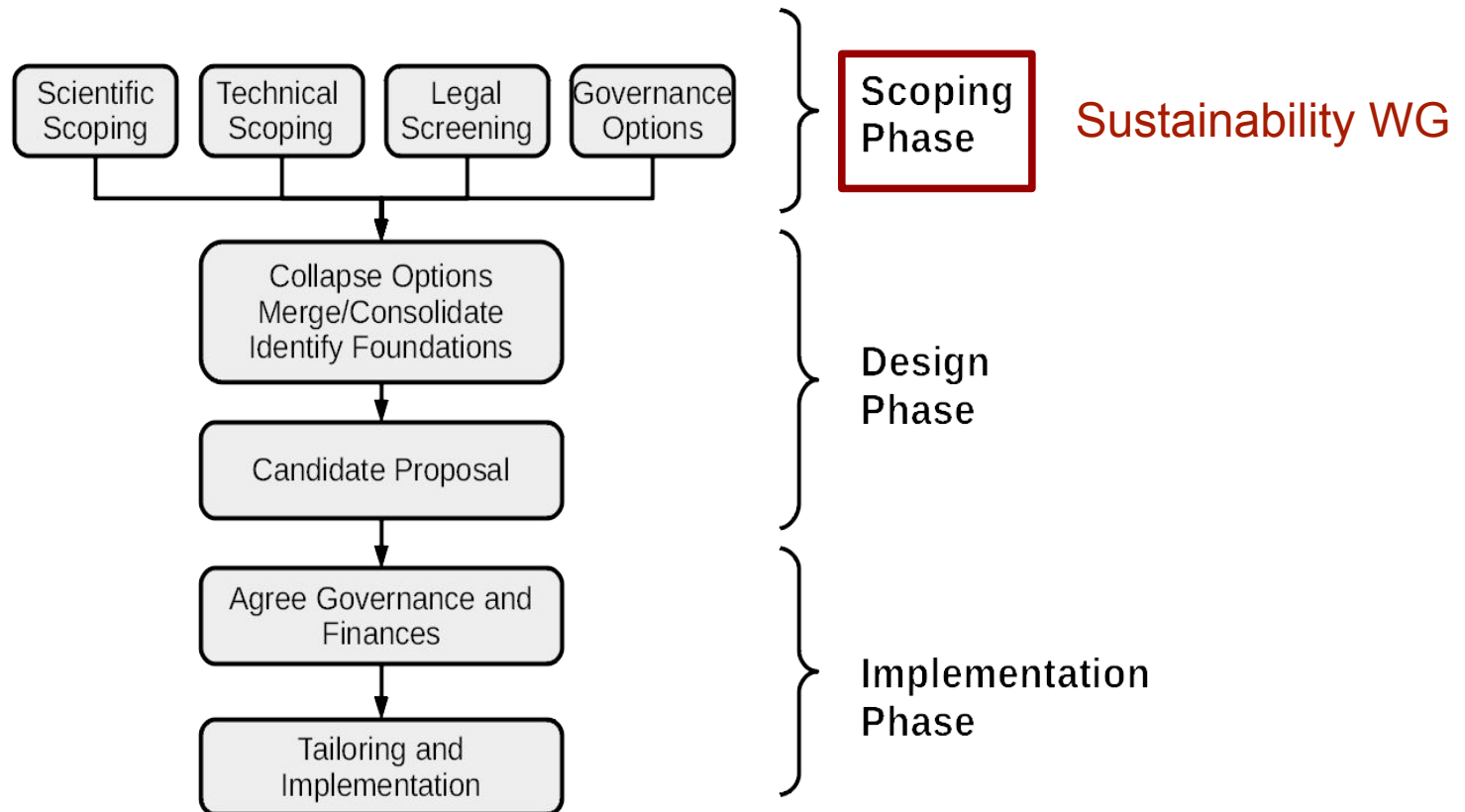- ESMValTool (IRIS)
- CDO

Analysis Systems
- Compute Services
- TNA Service

IS-ENESx: supporting current science and developments.
ESiWACEx: preparing the way for future computing (exascale etc)

Sustainability process

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

Legal screening

	Letter of Intent/ Letter of Commitment	Memorandum of Understanding	Consortium Agreement	AISBL, Belgian Law (EUFAR, PRACE, SeaDataNet)	ERIC
Legal entity	no	no	no	yes	yes
Binding agreement	Yes *	Yes *	Yes *	Yes	Yes
Signatory parties	Partner Institutions	Partner Institutions	Partner Institutions	Partner Institutions	Ministries of member countries.
Governance implications	None	None	Consortium leader	Governing body, Administrative Body	Assembly of Members, Director/Board of Directors
Formal Bookkeeping required	No	No	No, but advisable (light tbc)	Yes (level of complexity depending on financial size)	Yes (heavy, assimilable to an EU project, tbc)
Access to EU funding scheme	No	No	No	Yes	Yes
Liability (who and range tbc)	Depends on the agreement	Depends on the agreement	Depends on specific agreement	Limited liability - liability limited to their respective contributions	Liable for debts, can be limited to members contributions.
Costs to establish (e.g. lawyers)	Low	Low	Low	Likely high (might involve external consultancy)	Low, when established from an ESFRI, Likely higherwhen established "from scratch"
Timeline to establish (necessary stages)	Time for negotiation process and signature	Time for negotiation process and signature	Time for negotiation process and signature	Time for negotiation process and signature / 5-6 months upon submission to obtain Royal Decree. e.g. EUFAR: 4 years of work total	Step 1: 3 months starting from the submission of the application; Step 2: 6 months starting from the submission of the formal request to the Commission. (incl. translation of the decision in all official languages of the EU)

Legal screening

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
- The future governance of the ENES-RI will depend to some extent on the legal option chosen

Technical Scoping Matrix: ENES-RI as of May 2020

Activity Class	Service Classification	Service Names	Availability	Funding
Data Services and Data Systems (ENES-CDI)	Remote at infrastructure sites	ESGF Data Service (ESGF-UI, Identity Management & Access Control, Search, Pub Service, ESGF Index)	24/7 SLA	Inst. + Nat. + EU
		Compute/Analysis Service, IPCC-DDC	24/7 Best Effort	Inst. + Nat. + EU
		Errata Service, ES-DOC, SYNDA Data Replication/Staging, C4I Portal, ESGF Data Statistics Service (Data Metrics UI, Data Metrics Collector)	24/7 Best Effort	Inst. + EU
		Citation Service, PID Service	24/7 Best Effort	Inst.
	Data management	Data Request Service	24/7 Best Effort	Inst.+ Nat. + EU
		CF Convention Support	Best Effort	Inst. + EU
Models, Tools and HPC	Provision of software	Cylc	24/7 Best Effort	Inst. + EU
		OASIS, XIOS	Best Effort	Inst. + EU
Scientific Evaluation and Data Analysis		CDO	Best Effort	Inst.
		ESMVal	Best Effort	Nat. + EU

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.

Scientific scoping - next steps
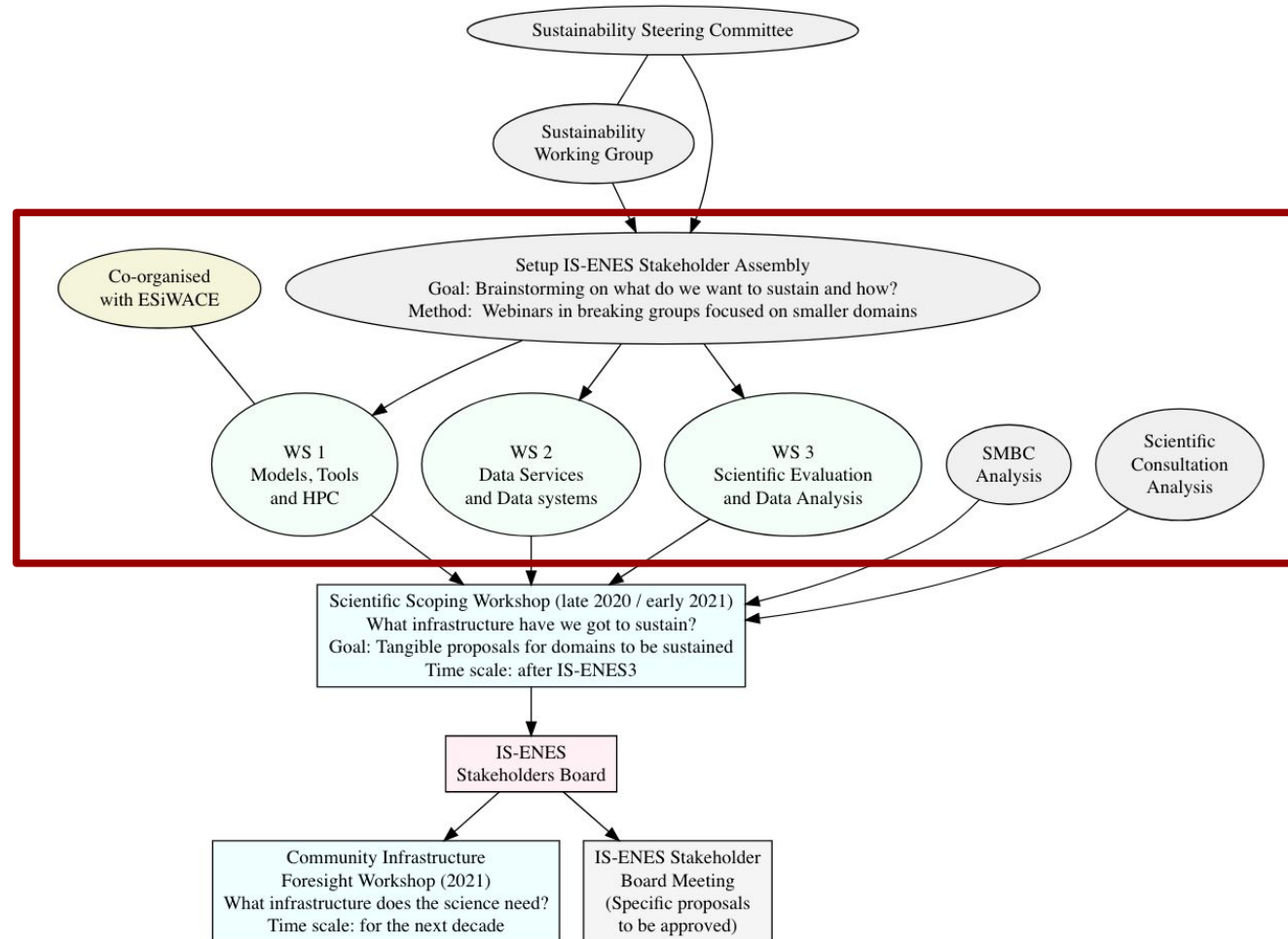
Summary

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 (late 2020 / early 2021)
- Set-up IS-ENES Stakeholders Board (Spring 2021)