IS-ENES3 Deliverable D2.2

The ENES-RI Sustainability Plan

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ABSTRACT

This deliverable D2.2 presents the candidate proposal under consideration for the future ENES-RI that is arising from the iterative discussions with the potential partners engaged in the process. The purpose of the future research infrastructure is detailed together with the anticipated structure and contours before exposing the proposed funding mechanisms.

Dissemination Level		
PU	Public	X
CO	Confidential, only for the partners of the IS-ENES3 project	

Revision table			
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Executive Summary

The Sustainability Working group of IS-ENES3 has been finalising the design of the future ENES-RI. There will be a coordinating entity composed of the ENES-RI Council, and Executive Board and the ENES-RI Office. A least one full-time role to lead the ENES-RI Office will be funded by annual membership fees paid by members. The service portfolio of the ENES-RI will be delivered by the member institutions on an in-kind basis. A draft agreement is being prepared. The main purpose of the ENES-RI is meant to work in the collective interest of its members and of the climate research community to (i) ensure the governance, coordination and management of the core activities of the ENES Research Infrastructure, (ii) improve the quality and effectiveness in the management, the processing, the integration and the dissemination of climate model data at national, regional and global levels, and (iii) facilitate the development and adaptation of community tools in the climate modelling field.

1. Preamble

The objective of the sustainability task within IS-ENES3 is to build an ENES Research Infrastructure (ENES-RI, Fig. 1) that supports long-term services to the ENES community. The ENES-RI is composed of two parts: (i) the ENES Climate Data Infrastructure (ENES CDI) that provides services and expertise enabling the exploitation of climate model data, and (2) the "Models, Tools and HPC" part providing services on software supporting the development, operation, optimisation and evaluation of climate models. To sustain the ENES-RI, an agreement needs to be defined to ensure continuity in development, deployment, maintenance, technology watch, update of the infrastructure, provision of services, resilience, compliance with user needs, governance and funding.

Considering the legacy of past initiatives (IS-ENES1, IS-ENES2 & ESiWACE1), the ongoing activities (IS-ENES3 & ESiWACE2), the reliance of the users on the existing services, the scales of the known challenges ahead, and the demonstrated added value of the European cooperation, the effort of building a long-term infrastructure providing sustained services to the climate modelling community in Europe needs to integrate existing partnerships and projects, and to strengthen existing governance and networking activities.

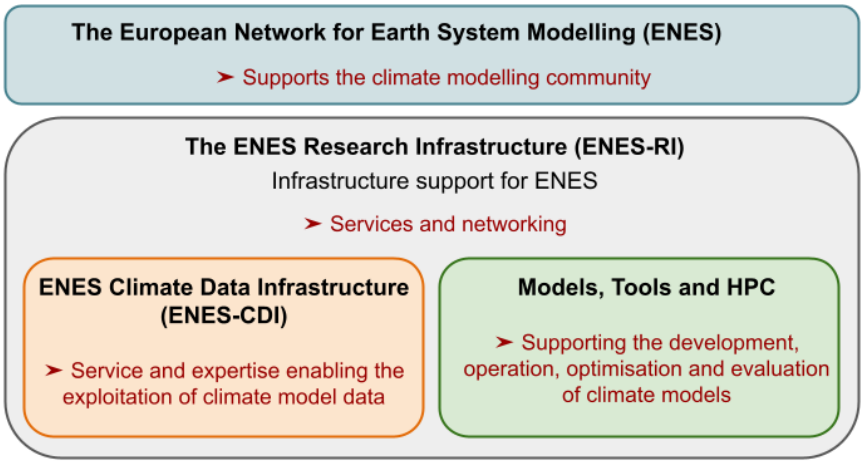

Fig. 1: The ENES Research Infrastructure.

Following the IS-ENES3 Description of Activities, the activities of the sustainability task have been articulated in three phases, to occur sequentially during the lifetime of IS-ENES3, namely the scoping, design and implementation phases (Fig. 2).

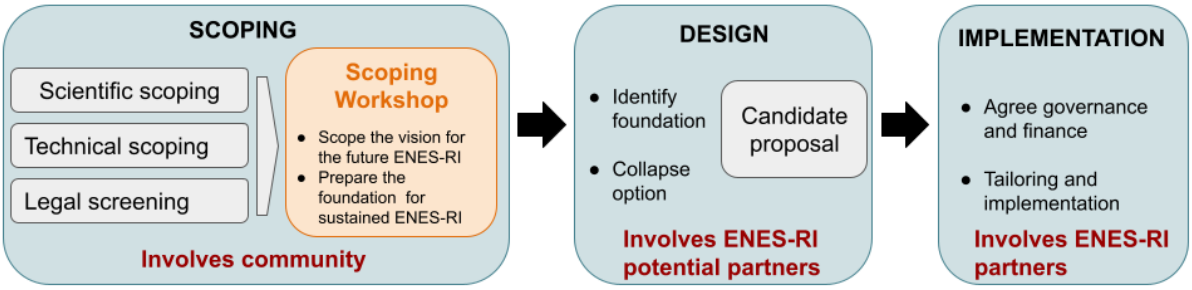

Fig. 2: The three consecutive phases of the Sustainability process in IS-ENES3.

The scoping process has been summarised in the milestone report M2.3 (published in Nov. 2021). The current ENES-RI services were summarised in the technical scoping (depicted in Fig. 3).

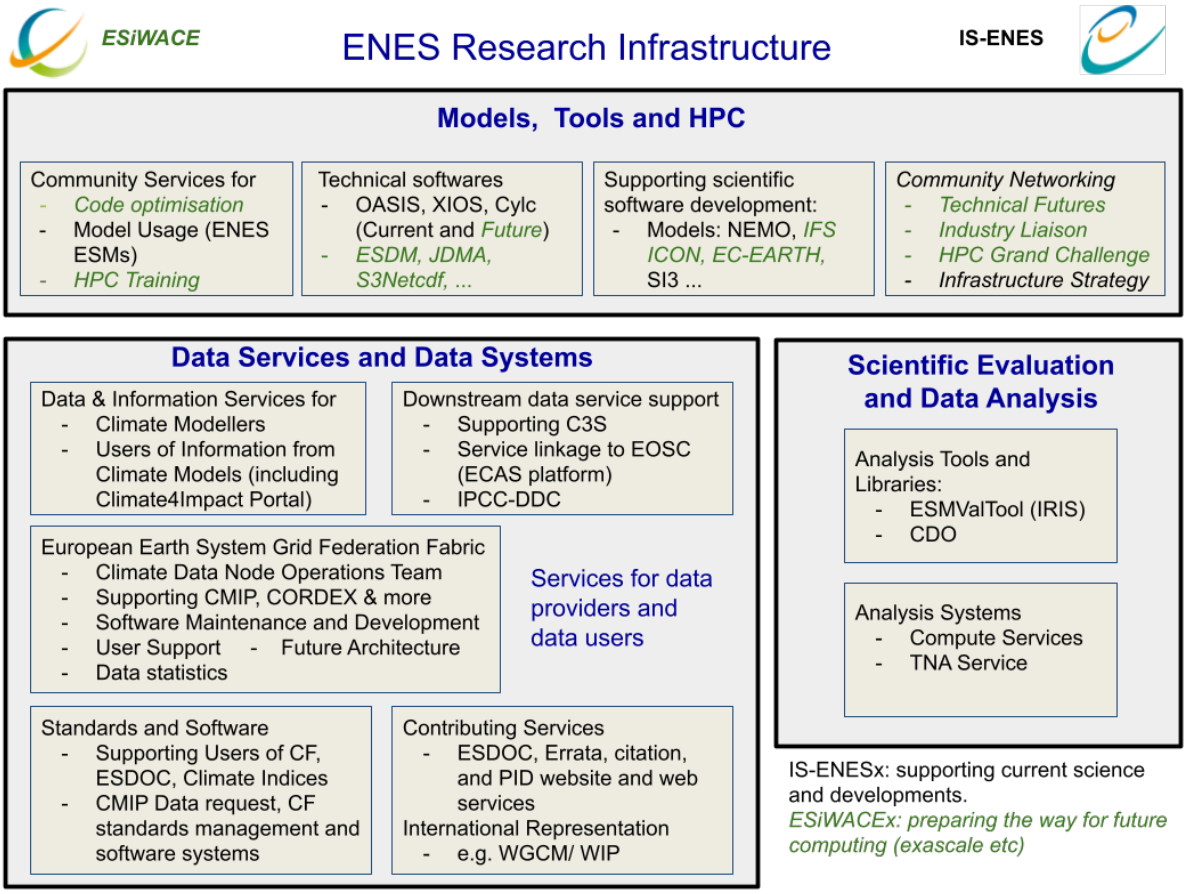

Fig. 3: ENES-RI at the end of the technical scoping (August 2021).

In this deliverable as the result of the design phase, we are presenting the candidate proposal for the future ENES-RI that is arising from the iterative discussions with the potential partners engaged in the process.

Starting with the purpose of the future research infrastructure, we detail the anticipated structure and contours before exposing the proposed funding mechanisms.

2. Purpose of the future ENES-RI

2.1 Context

Climate modelling research activities largely depend on the skills and infrastructure required to develop, run, and analyse climate models and their results. The existing infrastructure provides services facilitating (the climate modelling) community use of climate model data and software tools. An efficient and well-maintained research infrastructure requires coordination and funding. After many years relying on EC funding for the bulk of the necessary infrastructure, the ENES-RI now requires a sustainable entity to ensure the management and coordination of its core activities as well as to support fundraising to complement existing in-kind contributions.

2.2 Purpose

The ENES-RI coordinating entity, which does not seek financial gain, aims to work in the collective interest of its members and of the climate research community to:
(i) ensure the governance, coordination and management of the core activities of the ENES Research Infrastructure.
(ii) improve the quality and effectiveness in the management, the processing, the integration and the dissemination of climate model data at national, regional and global levels, and
(iii) facilitate the development and adaptation of community tools in the climate modelling field.

More specifically, the organisation aims to:

- Provide a platform to integrate climate model data and to disseminate them within and outside the community;
- Provide a platform for sharing expertise on community tools development and use;
- Promote the ENES Research infrastructure, tools and services and the development of underpinning science and technology;
- Foster cooperation and coordination within its Members in the field of data management, processing and dissemination;
- Foster collaboration among the modelling groups to speed-up the development and use of models of the complex Earth's climate system;
- Deliver common foresight strategies for the research infrastructure; and
- Integrate the contribution of the Climate Modelling community to European Union initiatives for cross-community access and analysis.

2.3 Collaboration Principles of the Consortium

The ENES-RI related collaboration in the consortium is governed in the ENES-RI Coordinating Entity. Members represent the two categories of climate model data & tools: producers/developers and consumers/users. Consumers split into experienced users and downstream users according to their experience in handling climate model data. The members of the ENES-RI Coordinating Entity cooperate with the aim to organise the ENES-RI as a reliable, fit for purpose and agile research infrastructure.

3. The structure and contours of the future ENES-RI

3.1 Organisation of the ENES-RI coordinating entity

The basic structure of the ENES-RI Coordinating Entity is provided in Fig. 4. There could be additional roles dealing with user and stakeholder engagement in a near future (currently under discussion).

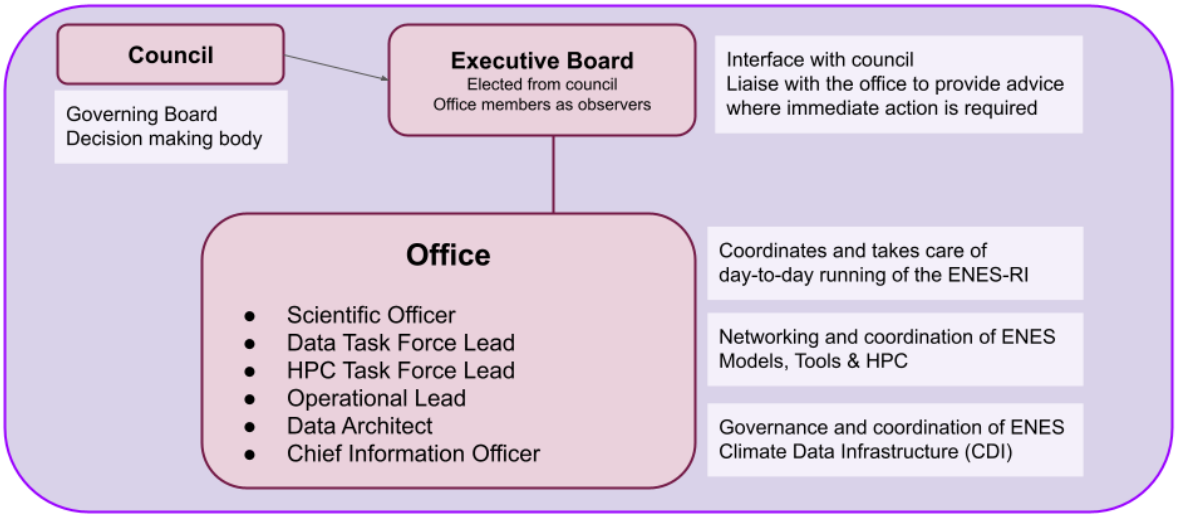

Fig. 4: Contour of the ENES-RI Coordinating Entity. Not all office roles are expected to be full time roles.

3.1.1 The ENES-RI Council

Mission

The council's role is to supervise the functioning of the ENES-RI, to discuss strategy, priorities and roadmaps, and to make decisions.

Functioning

The council meets once a year and can have an extraordinary meeting when needed.

Decisions should be taken by consensus. Each member institution has a specific number of voting rights based on the amount of its membership fees and potentially on in-kind institutional contributions delivered (under discussion).
The Council nominates the Executive Board members.

3.1.2 The ENES-RI Executive Board

Mission

- To represent the ENES-RI, in agreement with arrangements made within the Executive Board and the ENES-RI Office.
- To ensure the policies and practices of the ENES-RI are in keeping with its purpose.
- To monitor the planning of activities of the ENES-RI established by the office and propose the annual work programme to the Council.
- To support the Office with implementation of the strategic plan and the work programme.
- To prepare the Assemblies together with the Office.
- To propose the annual budget and the membership contributions to the Council and to prepare the annual accounts.
- To fulfil further duties and assignments delegated to the Executive Board by decision of the Council.

Functioning
The members of the Executive Board exercise their responsibilities and tasks in a proactive manner. They participate regularly in the Executive Board meetings.
The Executive Board meets as often as appropriate, normally three times per year. The rules of procedure for General Assemblies are to be applied accordingly.
The members of the ENES-RI Office are invited to participate in the meetings of the Executive Board without having a vote. The Executive Board may decide to meet virtually.

3.1.3 The ENES-RI Office

Composition
The ENES-RI Office is composed of a full-time Scientific Officer. The Scientific Officer will be advised on technical aspects by the Data Task Force Lead and HPC Task Force Lead (as part-time roles), and potentially in a later future by the following part-time roles: Operational Lead, Data Architect and Chief information officer (likely fulfilled by a single person).

Role and responsibilities of the Scientific Officer (Full-Time)

The Scientific Officer validly represents and legally binds the ENES-RI with respect to those matters which have been delegated to him by the Council.
The Scientific Officer shall a) keep Council members informed with respect to the activities of the ENES-RI b) bring to their notice any work or problems which might be of their interest c) inform them about the outcome of relevant meetings, conferences and other events, he/ she or other Office staff attended on behalf of the ENES-RI d) provide practical support for meetings of subsidiary bodies. Concise tables of the meetings the Office plans to attend in the upcoming 6 months and of meetings attended in the past 6 months are to be presented at the Executive Board meetings. The highest priority specific objectives for the Office for each year will be prepared together with a short report on progress against previous year's objectives for discussion at the first Council meeting of the year.

- Manages the day-to-day ENES-RI collaboration
- Acts as primary interface for pan-European communities, CMIP office, service providers
- Contributes to general coordination of ENES-RI boards and TFs
- Coordinates scientific strategy at the European level
- Organises communication channels
- Coordinates and organises training & workshops
- Contributes to the coordination of applications to funding opportunities and supports participation of partners in new projects
- Promotes the ENES-RI and its services

The Data Task Force and HPC Task Force as described respectively in (iv) and (v) will help the coordination of the ENES RI. Their leads will advise the Scientific Officer.

Role and responsibilities of the Data Task Force Lead (Part-time)

- Chairs, coordinates and takes care of the running of the ENES Data Task Force.

Role and responsibilities of the HPC Task Force Lead (Part-time)

- Chairs, coordinates and takes care of the running of the ENES HPC Task Force.

Other functions may be needed in the future to ensure the development of the services, these are shortly described below:

Role and responsibilities of the Operational lead *(Part-time)*

- Lead on cross-institutional service delivery.
- Ensuring all deployed services interoperate across European sites.

Role and responsibilities of the Data Architect *(Part-time)*

- To develop, maintain and lead coherent plans for data systems.

- Develop integrated architectural roadmaps which can be supported by funded activities.
- Integrating requirements from Task Forces.

Role and responsibilities of the Chief information officer *(Part-time)*

- ENES leadership with technology advice & lead on technology tracking
- Monitoring technological evolution to foster agile adaptation of ENES-RI and, where necessary, interoperation with other European and Global infrastructures.

3.1.4 The Data Task Force

Mission

- Advise on the ENES data infrastructure strategy.
- Coordinate the ENES-RI Climate Data Infrastructure (CDI)
- Advise and Represent the ENES-RI CDI in international coordination activities and in the deployment of international climate data infrastructure
- Establish and promulgate common European positions dealing with data, metadata services and the necessary software and services.
- Liaise with other international projects and activities
- Coordination and monitoring of third-party funding of the ENES CDI

Functioning

The Data Task Force meets as often as appropriate, normally once a month, virtually.

3.1.5 The HPC Task Force

Mission

- Facilitate networking and knowledge sharing on HPC and model performance
- Facilitate community governance on existing tools and services
- Advise on HPC requirements for the ENES infrastructure strategy
- Following and advising on ENES involvement in HPC projects
- Liaise with other international projects and activities

Functioning

The HPC Task Force meets as often as appropriate, normally every 3 months, virtually.

3.2 Services Portfolio

The ENES-RI service portfolio to be sustained is depicted in Fig. 5. The current effort in supporting the provision of current services will obviously be subject to changes after the end of the EU projects IS-ENES3 and ESiWACE2. However the community will work toward maintaining a functioning level of services after March 2023 on a collaborative in-kind basis. We expect to have initially 1 FTE to coordinate the ENES-RI services delivered by an estimate of 20 FTE (under discussion).

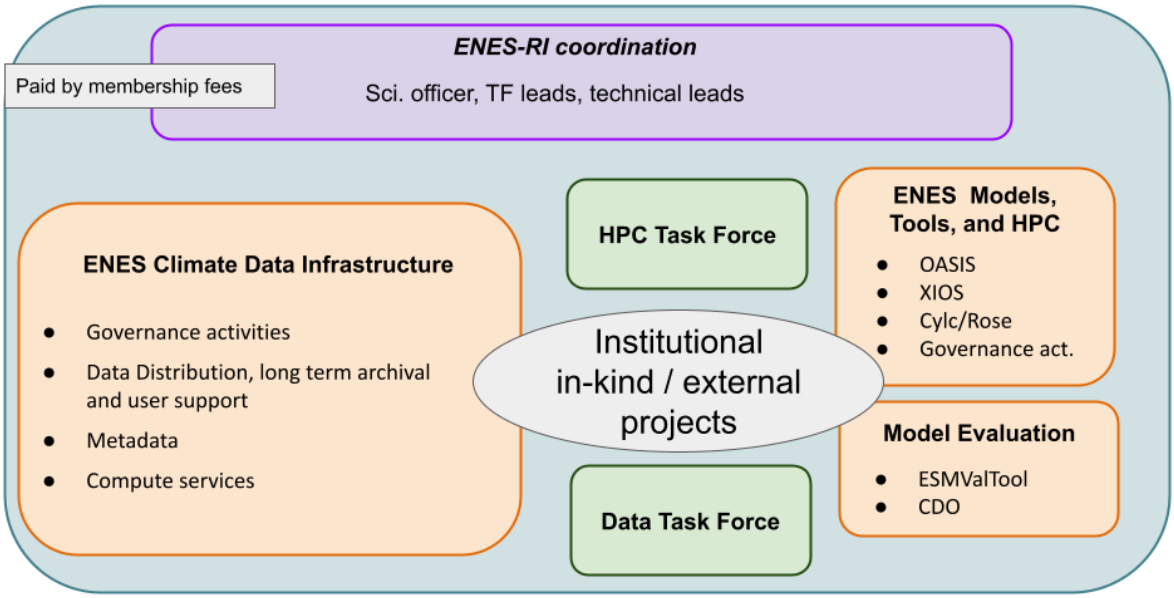

Fig. 5: ENES-RI service portfolio together with current in-kind contributions from the ENES consortium (August 2022)

The ENES-RI Coordinating Entity (fig. 4) is expected to run with staff ressources funded by membership fees (beginning with 1 FTE in the first years, potentially increasing to 2 FTE in a later stage). It will coordinate the service portfolio of the ENES Research infrastructure (Fig. 5) to be provided by in-kind contributions (more than 20 FTEs expected) and additional resources from future external projects.

4. The funding structure

The ENES-RI funding structure will consist of two pillars: membership fees and in-kind commitments. While the membership fees are in Euros and therefore easily countable, the in-kind contributions correspond to working effort contributions to tools and services at the European level. These working contributions generally fulfil institutional needs in synergy to ENES-RI tools and

services. They are difficult to capture and report, and coordinating efforts across projects require effort.

4.1 Membership contributions

Membership fees are collected on a yearly basis to fund office staff. A minimum initial sum of 125K€/year is expected for the first three years to be able to fund one full-time equivalent and the associated running and travel costs. The consortium that supports the ENES-RI consists of larger and smaller institutes. Membership fees should be adapted to the size of the institute and its weight in the infrastructure. We initially expect membership fees to range from 5000 € per year for smaller institutes up to 20000 € per year for core partners. The amount of the membership fee determines the weight of votes - one possibility would be to attribute 1 voting right per "5000 € per year". The level of in-kind contribution might also influence the voting rights (under discussion). The membership fees can be reviewed by the council.

4.2 In-kind commitment

The in-kind commitments from ENES-RI partners are expected to be enough to maintain a level of functioning services depicted in Fig. 5. Both community needs and the ENES-RI in-kind contributions will be highly dynamic. The ENES-RI Coordinating Entity will coordinate the in-kind contributions in an effort to balance supply and demand to manage a sustainable, reliable, fit for purpose and agile ENES-RI. The ENES-RI Council will provide oversight of the balance between requirements, capabilities, and contributions, with regular monitoring by the Executive Board and the Office.

The agreement for operating the ENES-RI may present the current list of tools and services provided by the ENES-RI with their responsible partners but specific FTE assignments to partners should be avoided as this is highly dynamic. The first council meeting then will revisit this list.

5. Next steps

A draft of the cooperation agreement will be distributed in the coming weeks to the representatives of potential member institutions, so that it can be reviewed by their administrations over the next few months. In parallel, the most likely institution currently anticipated to host the ENES-RI and collect the membership fees is analysing the feasibility of the legal construction and associated constraints.

Both activities are likely to trigger change to the details presented here.