ESMValTool Governance

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(I) Overview

The ultimate decision making body is the *ESMValTool **Steering Group***, chaired by the ***ESMValTool Co-PIs** who are nominated by the **Co-PI institutions***. The *Steering Group* is responsible for setting the future direction of ESMValTool and ensuring its sustainable development. Reporting to the *Steering Group* is from the ***ESMValTool Teams***: the ***Technical Lead Development Team,*** the ***Scientific Lead Development Team*** and the ***User Engagement Team.*** The terms of reference (ToRs) for each of these groups are defined in Section IV. A schematic of the overall ESMValTool governance structure is given in Figure 1.
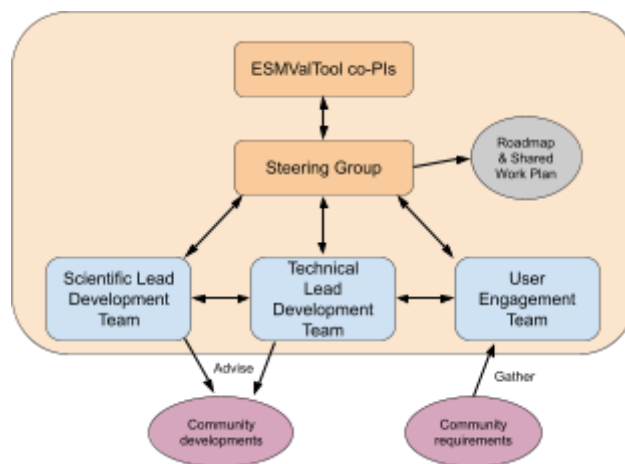

Figure 1. Schematic of the ESMValTool Governance

(II) Consortium Agreement

A fundamental element of the governance is that partners who commit a certain level of effort to ESMValTool development (minimum 1 Full-time equivalent (FTE)), are entitled to membership of the *Steering Group* and hence influence the strategic direction of ESMValTool.

(III) Annual Shared Work Plan and Long-Term Roadmap

This **core effort** of consortium members forms part of a **shared work plan** and **roadmap** which is overseen by the *Steering Group*. The *Technical and Scientific Lead Development and User Engagement Teams* provide inputs to the shared work plan and roadmap. Progress against these plans will be reported by consortium members at the annual *Steering Group* meetings. This core effort is only a subset of the wider contribution to the ESMValTool development which constitutes the shared work plan. The roadmap is a long-term strategy for the overall

development of the ESMValTool. The core effort in the work plan should align as much as possible with the roadmap which will be published for example on the ESMValTool website.

(IV) ESMValTool Governance Structure

IV.1 ESMValTool PIs

Responsibilities
- Visible leaders of the consortium
- Oversee the ESMValTool development in collaboration with the *Steering Group* and the other ESMValTool *Teams (i.e. the Scientific and Technical Core Development and the User Engagement Teams)*
- Joint casting vote on *Steering Group*
- Administrative rights for the Github repository
- Administrative management of the ESMValTool development team
  - Sign up and removal of ESMValTool users
  - Welcome email including instructions on license
- Formulate and oversee the Consortium Agreement

Membership
- Co-PIs Institutions: DLR & MetOffice / NERC
- Co-PIs: Birgit Hassler (DLR) & Alistair Sellar (MetOffice / NERC)
- Co-PIs Institutions nominate the Co-PIs from their centers
- A Co-PI proposed by one of the two Co-PI institutions can be rejected by a majority vote of the Steering Group

IV.2 Steering Group (regulated via a Consortium Agreement)

Responsibilities
- Communication between the Consortium Partners and *ESMValTool Teams (Technical and Scientific Lead Development and User Engagement Teams)* defined in this governance
- Oversee membership of *Steering Group* and ESMValTool Teams (see membership below)
- Organize the Annual General Assembly (can be remote meetings)
- Define and oversee the annual shared work plan and long-term roadmap
  - Collect input and feedback from the *ESMValTool Teams*
  - Draft a version and iterate with *Steering Group*
  - Finalize the annual shared work plan and update long-term roadmap
  - Task the *ESMValTool Teams* with implementing this strategy
  - Overseeing the shared work plan and long-term roadmap of *Consortium members* and the broader contributions
- Decisions on changes to the ESMValTool governance.
- Define and oversee the ESMValTool license

- In collaboration with the User Engagement Team, balance the requirements of consortium members with the wider interest of the climate model evaluation and other interested communities.
- Promote ESMValTool to the climate model evaluation and other interested communities and seek funding opportunities for technical and science development work

Membership

Voting seats:

- ESMValTool PIs (who are the co-chairs of the Steering Group) or an authorized representative from the Co-PI institutions
- + 1 representative for all partner institutions who signed the Consortium Agreement: criteria for members of the *Steering Group* = convincing commitment (minimum 1 FTE)

Non-voting seats:

- + one representative from each of the *ESMValTool Teams* with a non-voting seat

Reaching decisions

- The goal is to reach decisions by consensus.
- If consensus within the *Steering Group* cannot be reached, a 2/3 majority vote will prevail (see below). In the case that the vote is tied, the co-PIs will agree on a single casting vote.
    - Members who cannot be present can nominate a representative
- Possibility to veto decisions of *ESMValTool Teams*

IV.3 Technical Lead Development Team

Responsibilities

- Responsibilities apply to both ESMValCore and ESMValTool
- Handling (merging and coordinating reviewing and testing) of pull requests
- Work with the different scientific projects to coordinate work and prioritize based on relevant project deadlines.
- Organize regular teleconfs (e.g. monthly) to discuss upcoming work
- Make sure code is properly tested in an automated way
- Check compliance of contributions with the ESMValTool license
- Decision on which technologies to be used (e.g. programming languages, libraries, build systems)
- Setting standards for code quality and documentation
- Making technical decisions(see "reaching decisions")
- Define release strategy and schedule, in collaboration with *Scientific Lead Development Team*
- Propose the technical goals for the annual shared work plan and long-term roadmap to the *Steering Group*
- Report to steering group on decisions, technical progress, significant problems
- Manage technical risks and opportunities and report significant risks/opportunities to steering group
- Organisation of regular coding workshops of the ESMValTool development team

- Receive, interpret and implement (where appropriate) feedback from users and scientific development team.
- Support users when they open an issue on GitHub
- Liaising with collaborators from SciTools, ESGF, HPC centres, and/or other projects and services we rely upon
- Propose changes to Governance to *Steering Group*, if required

Membership
- Appointed by Steering Group, after consultation with the Technical Lead Development Team
- *Technical Lead Development Team* can veto the appointment of new members with a ⅔ majority.
- *Technical Lead Development Team* can remove members after a vote with a ⅔ majority.
- Proposed by Technical or Science Lead Development Teams or Steering Group, not necessarily a consortium member of staff
- Membership criteria tbd, mostly contributions (code, testing, code review , documentation, …) to the community (consistently contributing the community over a prolonged period
- Removal when certain criteria apply (to be defined, e.g. inactivity for more than one year, acting against the interest of the community)

Reaching decisions
- Normally all decisions will be made in consensus of all interested contributors
- In this context, consensus does not require:
    that we wait to solicit everybody's opinion on every change
    that we ever hold a vote on anything
    that everybody is happy or agrees with every decision
- If no consensus can be reached, the *Technical Lead Development Team* will ask the *Steering Group* to name a referee/mediator. If still no consensus can be reached, the *Steering Grou*p will decide.

IV.4 Scientific Lead Development Team

Responsibilities
- Responsibilities apply to both ESMValCore and ESMValTool repositories.
- Defining, updating, and documenting the scientific criteria for fitness of purpose of pull requests.
- Working with the TLDT, defining, updating, and documenting the quality standards for documentation, diagnostics, recipes, and other related code.
- Reviewing, testing, and approving of pull requests including fitness for purpose of code from a scientific point of view, specifically when new diagnostics, preprocessors, recipes and other code is being merged according to the defined standards.
- Provides *Technical Lead Development Team* with scientific prioritisation of upcoming features.
- Finding consensus with the *Technical Lead Development Team* on the release strategy and schedule.
- Report to *Steering Group* on decisions, progress with diagnostic implementation, significant problems, risks, and opportunities.

- Propose scientific goals and provide feedback to the *Steering Group* on long-term roadmap and the annual shared work plan.
- Receive, interpret and implement (where appropriate) feedback from the user engagement team and technical development team.
- Provide support for scientific questions from contributors and users.

Membership
- Appointed by the *Steering Group*, but the science team can nominate new members. There are no strict criteria or qualifications for membership, but we strive to represent the scientific diversity of the ESMValTool community, e.g. including members with expertise in the Atmospheric, Land surface, Ocean and observational sciences.
- Scientific team can veto the appointment of new members with a ⅔ majority.
- Scientific team can remove members after vote with a ⅔ majority.
- After more than one year of inactivity, members will be asked if they wish to continue to be part of the SLDT.
- Every project should nominate at least one member for the SLDT as a project representative to the Steering Group and the SLDT The task of the project representative on the SLDT is to oversee all pull requests of the particular project. This can be waived by the Scientific Lead Development Team (e.g.for small projects).

Reaching decisions
- Normally all decisions will be made in consensus of all interested contributors
- In this context, consensus does not require:
    - that we wait to solicit everybody's opinion on every change
    - that we ever hold a vote on anything
    - that everybody is happy or agrees with every decision
- For us, what consensus means is that we entrust *everyone* with the right to veto any change if they feel it necessary.
- If no consensus can be reached, the *Scientific Lead Development Team* will ask the *Steering Group* to name a referee/mediator. If still no consensus can be reached, the *Steering Group* will decide.

IV.5 User Engagement Team
= the group that interacts with the users in collaboration with the other two teams, the Steering Group and the Co-PIs.

Responsibilities
- Responsibilities apply to both ESMValCore and ESMValTool.
- One dedicated Lead, with a main contact panel for ESMValTool users.
- Non-voting seat on *Steering Group* for the lead (or dedicated representative) of the User Engagement Team.
- Identification of user groups and their needs and skills, including power users/champions.
- Provide and maintain a central support platform (website) with news feed, new versions, general announcements, FAQ, and forum based on *Steering group* initialization and *Technical and Scientific Development Teams* input.
- Provide an accompanying social media profile with the central platform.
- Promote the ESMValTool to new users.

- Provide a conduit for users to become developers.
- Propose user needs and requirements and provide feedback to the *Steering Group* on long-term roadmap and the annual shared work plan and communicate back to users.
- Delegate and provide user requests and feedback to *Technical and Scientific Development Teams*.
- Developing and deploying ESMValTool training.

Membership

- Appointed by the *Steering Group*, but the *User Engagement Team,* as well as *Technical and Scientific Development Teams*, can nominate new members.
- User Engagement Team can veto the appointment of new members with a ⅔ majority.
- User Engagement Team can remove members after a vote with a ⅔ majority.
- Largely composed of ESMValTool users with some overlap with the *Technical and Scientific Development Teams*.
- One **Lead** person nominated from *Steering Group*.
- One dedicated **Website** person.
- One dedicated **Social Media** person.
- An official contact panel of minimum 4 people (handling the requests).
- After more than one year of inactivity, members will be asked if they wish to continue to be part of the *User Engagement Team*.
- *Steering Group* has to decide how to proceed if *User Engagement Team* falls below 5 people.

Reaching decisions

- Normally all decisions will be made in consensus of all interested contributors.
- In this context, consensus does not require:
  - that we wait to solicit everybody's opinion on every change
  - that we ever hold a vote on anything
  - that everybody is happy or agrees with every decision
- If no consensus can be reached, the *User Engagement Team* will ask the *Steering Group* to name a referee/mediator. If still no consensus can be reached, the *Steering Grou*p will decide.
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