

The Einstein Telescope Scientific Collaboration Bylaws

The ET Collaboration Board

September 2023

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Nomenclature

Abbreviations

AAI	Authentication, Authorisation and Identity management
ALMA	Atacama Large Millimeter/submillimeter Arra
APPEC	Astroparticle Physics European Consortium
BUC	Bylaws Updating Committee
CAD	Computer Aided Design
CAD	Collaboration Agreement Document
CB	Collaboration Board
CDR	Conceptual Design Report
CEC	Communications and Education Committee
CE	Cosmic Explorer, a planned 3rd generation US project
CERN	European Organization for Nuclear Research
CoC	Code of Conduct
CPU	Central Processing Unit of a computer
DAQ	Data Acquisition
DSP	Deputy Spokesperson
EB	Executive Board
EC	Editorial Committee
ECSS	Early Career Scientists Support Committee
ED	Engineering Department
EGI	European Grid Infrastructure
EIB	E-Infrastructure Board
EMCC	Member Conduct and Ethics Committee
EOSC	European Open Science Cloud
EPO	Education and Public Outreach
ET-wiki	Einstein Telescope wiki
ET	Einstein Telescope
ETMDB	ET Member Database
ETO	Einstein Telescope Organisation
EVMC	Election, Voting and Membership Committee
FAIR	findable, accessible, interoperable, and reusable data or also Facility for Antiproton and Ion Research
FNR	Forum of National Representatives
FRTE	Full Research Time Equivalent
FTE	Full Time Equivalent
GWIC	Gravitational Wave International Committee

HPC	High Performance Computing
HTP	High Throughput Computing
IOA	International Ombuds Association
ISB	Instrument Science Board
KAGRA	The Japanese underground gravitational-wave detector project
LIGO	Laser Interferometer Gravitational Wave Observatory, the current US gravitational wave observatories
LSC	LIGO Scientific Collaboration
MSC	Meetings and Symposia Committee
OSB	Observational Science Board
PC	Program Committee
PD	Project Directorate, ETO Directorate
PhD	Doctor of Philosophy, philosophiae doctor, 'PhDs' often used synonymously to 'Doctoral Students'
PO	Project Office
PPP	Publication and Presentation Policy
PRC	Paper Review Committees
RU	Research Unit
SAC	Speakers and Awards Committee
SCB	Site Characterisation Science Board
SF	Science Forum
SKA	Square Kilometer Array
SPB	Site Preparation Science Board
SP	Spokesperson
SSB	Service and Standards Board
TDR	Technical Design Report
TDS	ET Technical Documentation System
Virgo	The Virgo gravitational-wave Collaboration and observatory
WLCG	Worldwide LHC Computing Grid

Glossary

FRTE:	The FRTE number is the ratio of the number of working hours spent on ET-relevant aspects during a given reference period (usually one year; in the case of the ET collaboration between CAD reviews (see C.1)) divided by the total number of hours available for research, i.e. full work time minus compulsory time for teaching or administrative work, by a researcher during the same period. The FTE number is simply the ratio of the number of working hours spent on ET-relevant aspects divided by the total number of work hours. Example: Someone, working in an institution where a full-time job is 40 h/week, spends 10 h/week on ET-related work. One full-time equivalent would be 40 h/week, hence this person is spending 0.25 FTE on ET-related work. If the person had a teaching obligation of 10 h/week, one FRTE would be 30 h/week, hence this person was spending 0.33 FRTE on ET-related work.
undergrad	Undergraduate students are students who have not yet earned a degree that qualifies them for doctorate or PhD study. i.e. The definition depends on the country. In many European countries, following the European Bologna process system, this is the master's degree.

1 Preamble

These Bylaws of the Einstein Telescope (ET) Collaboration describe the Collaboration governance structure and the fundamental rules under which the Collaboration is operating. It also describes the mechanics by which the Bylaws shall be modified or amended. Section 2 defines the Collaboration’s scope, mission, and ethical standards. The ET Organization (ETO) ¹ holds responsibility for certain aspects of ET, as discussed in section 3. Section 4 establishes the Code of Conduct as the basis for collaborative work.

Section 5 covers the Collaboration’s structure, including membership (section 5.1), rights, and obligations. It outlines the process for becoming a member and terminating membership and introduces the Collaboration Board, Executive Board, Forum of National Representatives, and positions of Spokesperson and Deputy Spokesperson. The Science Forum, its mission, and composition are described in section 5.5.

Operational aspects of the ET Collaboration are organized by the Service-and-Standards Board (section 5.7). The roles of scientific and technical boards are detailed in section 5.8.

The 12th edition of ”Robert’s Rules of Order, Newly Revised” serves as a guide, unless otherwise stated in the Bylaws. Any changes to the Bylaws require approval from the Collaboration Board.

The Bylaws are organised in two tiers/levels.

The Tier-0 part provides a stable basis for the underlying organisation of the Collaboration, which should only be changed for very important reasons and with the support of a large majority of the Collaboration members, initiated with a sufficiently high threshold to avoid overly frequent changes (see 5.2.4).

The Tier-1 part describes the rules of the collaboration at the working level, with a lower threshold to adapt to changing needs without too much bureaucracy.

Tier-0: The foundations of the Collaboration

- Collaboration structure
- Collaboration Board
- Executive Board
- Forum of National Representatives
- Science Forum
- Policies and procedures for Elections, Motions, Voting
- Presentations and Publications policy
- Code of Conduct
- Ombudspersons
- Brief descriptions of the policies of the Specific boards

Tier-1: Appendices

- Details on the Specific Boards
 - Mandates
 - Procedures
 - Internal structuring of the Boards
- Grievance Procedure
- Collaboration Ombudsperson

¹The whole ET endeavour is composed of the ET *Organisation (ETO)* and the ET *Collaboration*

2 Mission of the Collaboration

The ET Collaboration has the duty to

- propose, design, realise, install, commission and maintain the Einstein Telescope **instrument**.²
- define, develop, and investigate the science of the Einstein Telescope.
- design, develop and maintain the ET computing model and the related software.
- deliver ET science data, once available, according to the data policy as determined by the ET Leadership (see Appendix A) and the Collaboration Board.
- scientific exploitation of the ET data.
- investigate, elaborate and propose the ET scientific strategy and future upgrades of the ET observatory to the ET leadership.

Some aspects of the ET Project instead fall under the responsibility of the Organisation³, as described in more detail in the Annex A.1.

The accomplishment of these tasks is a common goal of the entire Collaboration, to which the individual members contribute according to their skills and resources. Contributions can be made through the provision of equipment (as in-kind contributions) or through intellectual contributions.

An appropriate financial contribution to the common funds of the Collaboration is expected from participating institutions, possibly through national funding agencies (see Section 7).

The ET Collaboration strives for inclusive workplaces free from discrimination and harassment. It is the policy of the Collaboration that all Members will conduct themselves in a professional manner that is welcoming to all participants and free from any form of discrimination, harassment, or retaliation. Members will treat each other with respect and consideration to create a collegial, inclusive, and professional environment. It is the responsibility of all members to create a supportive environment that enables scientific discourse.

The ET Collaboration makes every effort to maintain the highest ethical standards and scientific integrity. Fabrication, falsification, or plagiarism in proposing or performing research shall not be tolerated. Any output from the collaboration is shared by all members and is subject to rigorous review and fact-checking processes before results are made public. All members who made substantial contributions to a work are included as authors. The ET Collaboration gives credit to those who originated ideas used in its research, by methods and policies to be defined within the Collaboration. Scientific work is reviewed fairly and objectively, maintaining the confidentiality of the work reviewed.

The success of the collaboration is bound by the individual commitment to physics and the prospect of exciting new results that can only be achieved with a complete and coherent collaborative effort.

²The ET **instrument** does not include the items for which the ET *Organisation* is responsible, e.g. the ET infrastructure or the beam tube vacuum system.

³The word "Organisation" is used here to distinguish between the ET **Collaboration** and the ET **Organisation**, i.e. the part of the ET activities managed by the Project Directorate (including the Project Office, the Engineering Department and the Communications Office), which will evolve into the legal ET entity.

3 Relation between the ET Collaboration and ET Organisation

The relation between ET Collaboration and ETO will change throughout the evolution of the ET project. A sketch of the current situation is given in Appendix A.

Leading members of ETO (e.g. the Project Directors, the Project Office chair, the Engineering Department chair, the Communications office chair) are invited to participate in meetings of the ET Collaboration and have access to meeting minutes of the Collaboration to stay informed about ongoing processes and discussions.

We anticipate that ETO will extend invitations to the appropriate members of the Collaboration leadership to attend ETO meetings in a reciprocal manner.

The Communications Office is an overarching body of ETO and the ET Collaboration, whose mandate includes ensuring information flow in both directions.

The appointment of key positions in the Collaboration that are also under the responsibility of ETO, e.g. heads of divisions in the ISB, is done by the Collaboration nominating chairs and ETO endorsing the nominations.

The Collaboration welcomes advice from the ETO on changes to the Tier-0 ET Collaboration Bylaws. By the standing invitation of ETO (PD, PO and ED Chairs) to ET Executive Board and ET Collaboration Board meetings, where all Bylaw changes are presented and discussed, ETO can keep itself informed according to its needs and wishes.

4 Code of Conduct

The Code of Conduct defines the behaviour of people within the ET collaboration. It is the foundation of the Collaboration.

The ET Collaboration strives for workplaces free from discrimination and harassment. It is the policy of the Collaborations that all members will conduct themselves in a professional manner that is welcoming to all participants and free from any form of discrimination, harassment, or retaliation. Members will treat each other with respect and consideration to create a collegial, inclusive, and professional environment. Creating a supportive environment to enable scientific discourse is the responsibility of all members. Members will avoid any inappropriate actions or statements based on individual characteristics such as age, race, ethnicity, sexual orientation, gender identity, gender expression, marital status, nationality, political affiliation, ability status, or educational background. Disruptive or harassing behaviour of any kind will not be tolerated. Harassment includes but is not limited to inappropriate or intimidating behaviour and language, unwelcome jokes or comments, unwanted touching or attention, offensive images, unwelcome photography, and stalking. Disruptive behaviour includes instances of disrespect and lack of civility in interactions with colleagues. All members are expected at all times to deal with and address their fellow colleagues with respect and courtesy. This includes but is not limited to, behaviour in in-person meetings, virtual (remote) meetings, chats, social media, email communication and other communication formats.

Any professional relationship or action that may result in a conflict of interest in the context of ET must be fully disclosed. When objectivity and effectiveness cannot be maintained, the activity should be avoided or discontinued.

The ET Collaboration also will not tolerate instances of scientific misconduct, which is characterised by any of fabrication, falsification, or plagiarism in proposing or performing research in the ET Collaboration. Fabrication means making up data or results. Falsification means manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record. Knowingly reporting or reproducing fabricated or falsified results of others is also considered as misconduct. Plagiarism means the appropriation of another person's ideas, processes, results, or words without giving appropriate credit.

Violations of this code of conduct policy should be reported as soon as possible to meeting organisers, working group chairs, or the ET Leadership – whatever is most appropriate in the situation. If desired/required, the Ombudsperson (see section [F](#)) can be called on and assist in finding an appropriate complaints procedure.

Any violations of the Code of Conduct will be pursued through discussion with the party or parties involved, if desired, with the help of a mediator chosen by the disputing parties. Significant violations can result in immediate consequences in access to ET Collaboration activities; repeated marginal violations will also be addressed. Sanctions for violations of this Code of Conduct will be determined following the grievance procedure and may result, in severe cases, in the permanent exclusion of an individual or group from the ET collaboration.

Conflicts which cannot be resolved through collaboration procedures will be referred to the institution of the person(s) who may have violated the Code of Conduct. The Collaboration may take action based on the institution's findings. Retaliation for complaints of inappropriate conduct will not be tolerated. If a member observes inappropriate comments or actions and personal intervention seems appropriate and safe, they should be considerate of all parties before intervening. This Code of Conduct is the defining document for the ET Collaboration.

A policy for formal complaints in case things do not work as expected is given in the appendix [E.1](#).

5 Collaboration Structure

The Collaboration is organised in different bodies, as depicted in fig 1.:

- the Executive Board (EB)
- the Collaboration Board (CB)
- the Science Forum (SF)
- Specific Collaboration Boards
- Service and Standards Board (SSB)
- Forum of National Representatives (FNR)

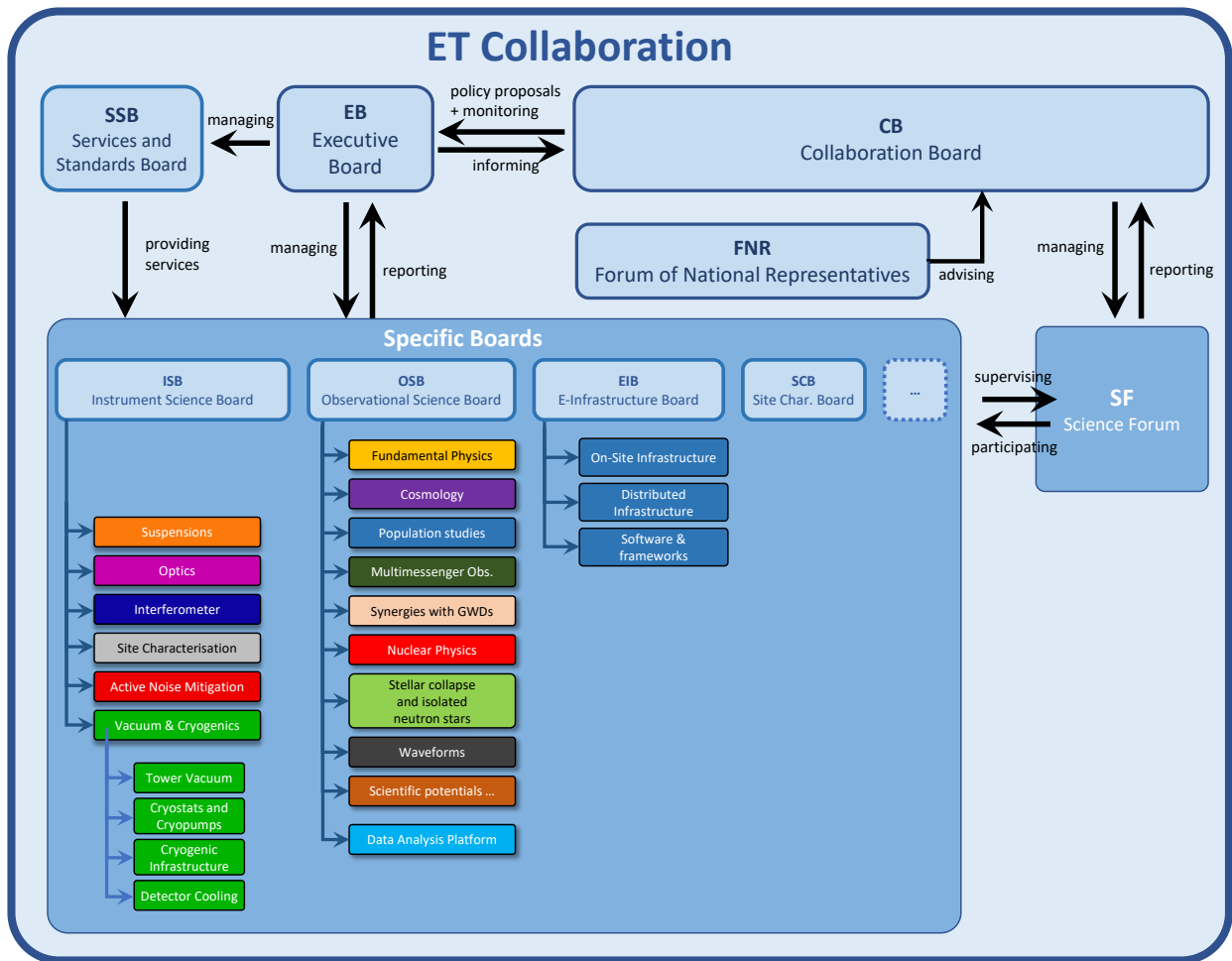


Figure 1: Collaboration governance overview.

The current state of the ET Organisation and its relation to the Collaboration is depicted in Appendix A in fig A.1.

5.1 Collaboration Membership

5.1.1 Membership Categories

Note that this section will be updated according to "Option 1" of the CB vote of October/November 2023. The standard and preferred way for an individual to become an ET member (see 5.1.4) is through affiliation to an existing Research Unit (RU). Groups of people who are not co-located with or affiliated to an ET member institution and wish to join the Collaboration may establish a new RU.

Research Units. Research Units are groups of ET Collaboration members. By default, groups belonging to the same university or a local research institution are regarded as a single RU. In case of national or regional research organizations with geographically distributed sections, each local section is defined as an independent RU. Exceptions can be agreed on by the CB with a 2/3 majority. Each RU defines a RU Leader, who is the main responsible for communicating between the Collaboration and the RU on all RU-specific enquiries from Collaboration bodies, the RU members or persons wishing to become a member of the RU. The RU leader is responsible for keeping the RU members informed about discussions and decisions in the CB and is one of the delegates of the RU on the CB (see 5.2). If several research institutions that are members of ET are co-located and there is an affiliation mechanism between them (e.g., between a university and the local section of a national or regional institute), they shall form a single RU. To be eligible for ET membership, an RU must commit at least 1.5 FRTEs⁴ RUs that are already part of the Collaboration and will not reach 2.0 FTE at July 2025 will have one year to adjust. See details in 5.2.2.

The CB has the flexibility and discretion to adapt the above rules to specific and justified cases.

Individual members. Individual scientists who do not belong to a Research Unit 5.1.1 can exceptionally become a member of the Collaboration through the ET Science Forum (see Section 5.5). They will have reduced rights and duties. ET SF members will be exempt of common funds (see Section 7). The whole Scientific Forum will be represented in the CB by one representative.

5.1.2 Qualification for Membership; Duties of Collaboration Members

Each ET member has to be an active member of the Collaboration, i.e. usually a member of a division, and declare his/her/their role in it and the amount of work offered in fractions of an FRTE. The minimal contribution to the ET Collaboration of each member shall be 10% FRTE. RU Leaders shall have at least 30% FRTE of ET Collaboration contribution. It is expected that PhD students, who wish to become an ET Collaboration members, focus a good part of their efforts on ET and hence should dedicate at least 30% FRTE to ET Collaboration work.

Members of the ET Collaboration are expected to

- adhere to the ET Collaboration Code of Conduct and the Collaboration rules (see 4)
- be an active member of the Collaboration, i.e., in most cases actively participating in a research activity which contributes to the ET goals, in a working group or division of one of the Specific Boards
- declare his/her/their role in the Specific Boards and the amount of work offered in fractions of an FRTE
- Members are expected to communicate to the Collaboration and make fully available to the Collaboration all ET relevant results of their research activities, especially if they have been produced with ET collaboration resources or the Collaboration's foreground knowledge. For software created in the ET Collaboration, this includes making the source code available. All ET-relevant research (as defined in the ET Program) shall be communicated and coordinated in the corresponding working groups.
- do service work for the Collaboration (see Section 5.7)

⁴(FRTE) The FRTE number is the ratio of the number of working hours spent on ET-relevant aspects during a given reference period (usually one year; in the case of the ET collaboration between CAD reviews (see C.1)) divided by the total number of hours available for research, i.e. full work time minus compulsory time for teaching or administrative work, by a researcher during the same period. The FTE number is simply the ratio of the number of working hours spent on ET-relevant aspects divided by the total number of work hours. Example: Someone, working in an institution where a full-time job is 40 h/week, spends 10 h/week on ET-related work. One full-time equivalent would be 40 h/week, hence this person is spending 0.25 FTE on ET-related work. If the person had a teaching obligation of 10 h/week, one FRTE would be 30 h/week, hence this person was spending 0.33 FRTE on ET-related work.

5.1.3 Member Rights

- Access to internal information
- Authorship rights in full Collaboration papers (see C.5).
- Participating in setting the goals of the Collaboration through representatives in the ET CB
- Possibility to present ET results on behalf of the full Collaboration (see C.5).
- Access to the shared tools and resources set up by the collaboration through common or project funds

5.1.4 Becoming a Member

- **The standard way for individuals to become an ET member** is joining an existing RU. The RU leader must confirm that the applicant is a member of the RU, specify the topic the applicant will work on and state the FRTE share committed to the collaboration by entering the required data into the ET membership database. It is the responsibility of the RU leader to forward the information about a new member to the appropriate work units to which the new member contributes.
- **Applicants for the inclusion of a new RU in the Collaboration** must contact the EB in advance and present their contribution proposal. The EB can delegate the discussion of support of the proposal to a division or a working group of a Specific Board (see 5.8). If the request is supported, the EB proposes the inclusion of the new RU to the CB. The applicant must then present the proposed work, the qualification of the RU, and the pledged FRTEs to the CB. The proposed contribution should serve the objectives of ET as defined in dedicated documents produced by the ET-Programme Committee (see 5.7.1) once existent. Exceptions can be decided by the CB. New RU membership applications shall be voted on with a lead time of at least one week at the next CB meeting. If the vote is positive, the new member is accepted into the Collaboration for a one-year test phase, after which the RU's performance is evaluated by the CAD subcommittee (see 5.7.1). Each RU shall sign a Collaboration Agreement Document (see App. C.1), describing the work the RU intends to contribute to the Collaboration and the FRTE percentage of each of the named RU members. The flow chart of this procedure is shown in Figure 2.
- **Individual applicants that are not associated with an ET RU** (see App. 5.1.1) can become members of the ET Collaboration through the Collaboration's Science Forum (see 5.5), although it is an exceptional procedure. Being an exceptional case, applications are dealt with directly by a team consisting of the Chair of the CB, the SP and the Deputy SP. This team can delegate the task to a special committee that will be formed if necessary. Each ET SF member will annually report on the achievements of the previous year and the objectives for the next year. The reports will be reviewed by the Collaboration Agreement Document Committee (see 5.7.1).

5.1.5 Legacy Members

Particularly merited members of the Collaboration may be granted a lifetime full membership status (legacy membership) upon application. Such special merits could be: holding a leadership position for a prolonged period of time in the Collaboration, or prior to the formal establishment of the Collaboration. The decision on such applications shall be made by the CB.

5.1.6 Membership Termination

ET members receive full ET authorship rights (being on the ET author list) after one year of membership in the Collaboration. PhD students will receive authorship rights immediately after joining the Collaboration. The authorship rights last for one year after voluntary withdrawal from the Collaboration. If ET membership is resumed within this year, new "authorship credit" is accumulated according to the remaining time. ⁵

Voluntary Members of the Collaboration may terminate their Collaboration membership at any time at their own request. The details of the existing procedure and the consequences thereof shall be worked out by a committee convened by the CB.

Collaboration members leaving the Collaboration will retain authorship rights for one year.

⁵Example: An ET Collaboration member voluntarily leaves the Collaboration after several years of ET membership and returns to the Collaboration after 3/4 of a year. 1/4 year of authorship rights remains. The member now builds up new authorship credit based on this remaining 1/4 year, such that after another 3/4 year, an "authorship credit" of a full year is built up again. Throughout this build-up period the member retains ET Collaboration authorship. If the member then were to leave the Collaboration again, the ET member would again have full ET authorship rights for one year.

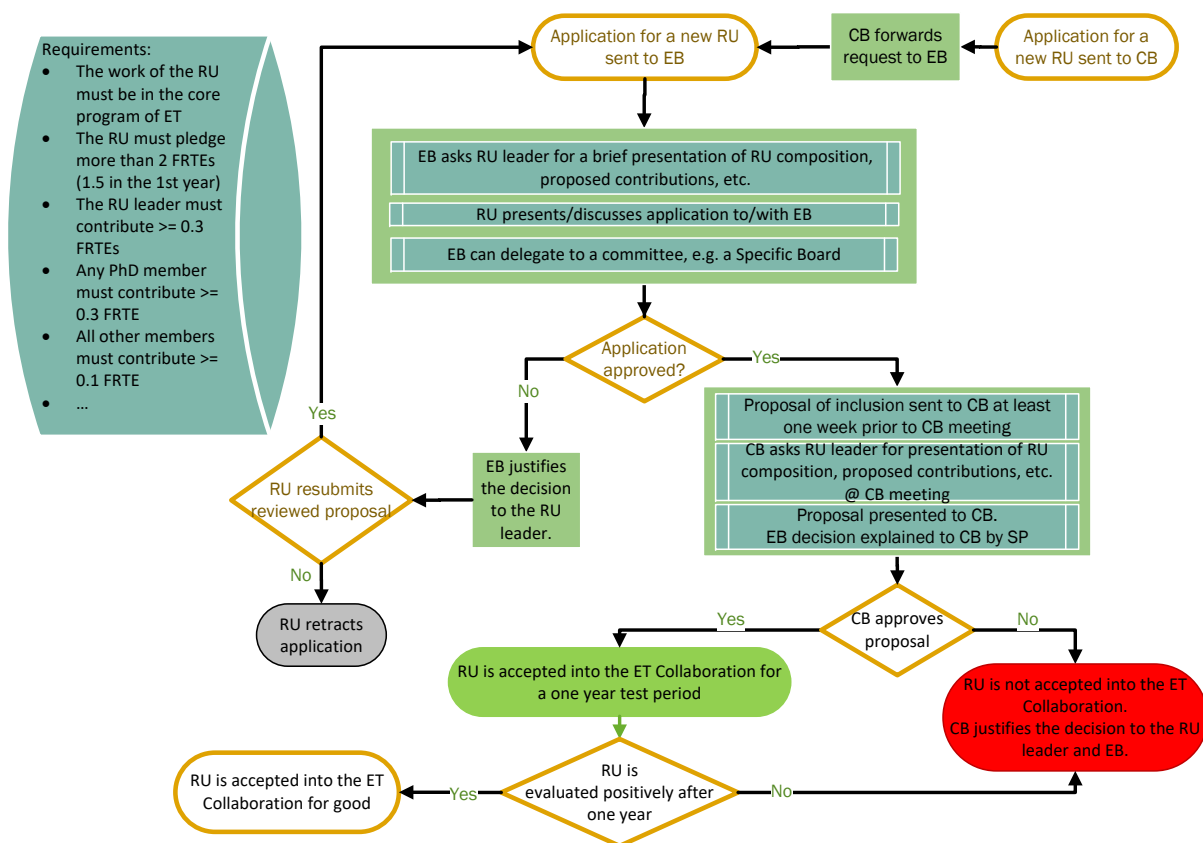


Figure 2: Flow chart of the procedure for forming a new Research Unit.

Expulsion In the event of severe or repeated violations of the Code of Conduct or a period of persistent non-performance in Collaboration activities, as evaluated by the CAD Committee (see C.1), the CB may, as a last resort, if other mitigation measures fail, expel members from the Collaboration by a qualified majority of 75%.

Procedure: For all grievances against an ET Collaboration member, first the grievance procedure as described in E applies. Only if mitigation according to this procedure fails, an expulsion procedure can be triggered. If one of the above offences against an ET Collaboration member still holds after the grievance procedure, the accusation must be substantiated in detail by the ET Spokesperson or the instantiated committee (see E.1), it must be documented and the Spokesperson and Ombudsperson/s must be informed (if not already done so in the previous grievance procedure). The accused member must be given sufficient opportunity to defend himself or herself and, if possible, to remedy the situation. In the case of an allegation of a repeated minor offence, the accused member must have already been requested to remedy the offence when it occurred previously. This request must be made in writing (email with a response from the offender is sufficient) and must be documented by the Spokesperson. Only if the Spokesperson and the Ombudsperson still consider the accusation to be justified after the detailed discussion, will the matter be presented to the CB and discussed there. Here, too, the accused member must be given the opportunity for defence.

Expulsion from the ET Collaboration is a serious act which can have serious consequences for the expelled member and must be the last resort, if there is absolutely no other remedy.

Members who will be expelled from the Collaboration, might lose their authorship rights immediately. The decision lies with the CB.

5.2 The Collaboration Board (CB)

The ET CB is the representative and governing body of the Collaboration. Its decisions on matters of science, policy, and procedure are binding and represent the position of the Collaboration.

5.2.1 Collaboration Board Activities

- The CB elects the Spokesperson (SP) and the Deputy Spokesperson (DSP) for a three-year term.
- The CB elaborates ET’s long-term strategy and recommends it to the stakeholders.
- The CB approves and revises the Collaboration Bylaws.
- The CB defines the membership rules for the ET collaboration.
- The CB defines the publication rules for the collaboration.
- Specific Boards and Committees are proposed by the SP and voted into existence by the CB, in an action that modifies the Bylaws. Substructures in the Boards and Committees are handled within the Boards and Committees. In the same way, the CB decides by vote upon proposal by any CB member or chair of the respective Board or Committee on the termination of it.
- The CB decides on the inclusion of new RUs in the ET collaboration
- The CB approves the main responsibilities and expenditures suggested by the EB and communicates them to the Council.
- The CB proposes the relations with other scientific collaborations and projects for endorsement by the Project Directorate.
- The CB has the duty of verifying the actual full-research-time equivalent (FRTE) participation of each RU using a well-defined analysis method. The CB delegates this task to the CAD Committee in the SSB (see C.1). For this purpose, the EB, through its specific boards, has to provide descriptions (WBS; ...) detailing the activities, the participation and the roles of the members of the collaboration. The contributions are reviewed by the Collaboration-Agreement-Document (CAD) Review panel (see C.1) by annually comparing the work reported by each RU with the commitments pledged.
- The delegate/s on the CB of each RU has/have the responsibility to declare the FRTE composition of the RU.
- The CB elects its Chair for a three-year term by the procedure defined in C.6.2.
- The Chair coordinates the work of the CB. In particular, the Chair shall convene the meetings of the Board, which should typically be held every month, but at least twice a year. The CB chair can call for exceptional meetings at any time.
- The CB endorses the members and the structure of the Executive Board (EB) (see Section 5.4) proposed by the SP. If the CB does not agree with the SP’s proposal, it will justify its refusal, discuss the situation and find a new solution in consensus with the SP.
- The CB elects the chairs of the “specific boards” and panels by simple majority. These chairs will be ex officio members of the EB.

5.2.2 Collaboration Board Composition

Note that this section will be updated according to “Option 1” of the CB vote of October/November 2023.

Each Research Unit (see 5.1.1), contributing more than 2 FRTE⁶ to the ET Collaboration, is represented in the CB by at least one delegate. The number of FRTEs may temporarily (up to one year) fall below the threshold of 2 FRTEs without the RU being excluded from the CB. If the reduction in FRTEs remains for more than one year, the RU members are automatically included in the Scientific Forum until the threshold is exceeded again. For the first year after application, the minimal threshold is reduced to 1.5 FRTEs. PhD students are included in the count, undergraduate students are excluded. After the Collaboration’s third year of existence, i.e. from July 2025, the transition between FRTE and FTE will take place. At that point, we can consider the initial phase of the Collaboration’s life as over, and a certain level of correlation between the FTE declared by the RU and the number of its delegates is expected. The number of delegates sent by the RU is calculated according to the formula:

$$\text{int}(1 + n\text{FTE}/m) \quad \text{if } n\text{FTE} \geq 2, \quad (1)$$

where $m = 5$. The definition of the number of delegates should be based on a regular and synchronous verification performed every year. The verification process is described in Appendix C.1.

Each ET RU is responsible for declaring via the ET Member Database (ETMDB) which of their members are CB representatives, updating at least once every year.

⁶see footnote 4

After discussion and consensus, the CB may admit (and exclude) observers without voting rights from external projects to the meetings. In this case, the CB should try to agree on reciprocity with the other projects.

CB members have a responsibility to actively participate in the CB's governance process, including staying informed of CB business, discussing CB issues with their respective RUs, representing their RU's perspective in the CB, and participating in CB decision-making; if this is not possible, a different delegate should be designated.

Verification of the Collaboration Board composition The composition of the CB according to the above rules will be verified in a yearly process, checking the reported number of FTEs vs the number of CB members according to equation 1. The verification will be part of the annual CAD review process (see C.1).

Collaboration Board Chair At the beginning of each CB meeting, the CB chair has to check whether a quorum is reached (see Section 5.2.3).

The ET CB elects a CB chair. The Chair has the responsibility and authority to facilitate the governance of the CB. The Chairperson's responsibilities include all aspects of planning, convening and conducting meetings of the CB in consultation with the SP and documenting the decisions of the CB.

The ET CB Chair motivates and supports CB members in participating in the discussion and in bringing forward motions to the CB. The CB Chair may delegate certain responsibilities to other ET Collaboration members in case of need or conflict. The choice of substitute should be discussed with the SP (who could take on the role if appropriate for the meeting in question). The position of CB Chair will be for 3 years and will be phased to alternate with SP elections. The CB may remove the sitting Chair in an electronic vote with a 75% majority vote, excluding abstentions. The CB Chair position can be taken up a maximum of two times, but not in consecutive election periods. The CB Chair keeps a record of the meeting, including the primary decisions made by the CB, a video recording, an audio recording, and a list of public chat messages. Documents referenced in the meeting are linked to the meeting record.

The CB chair also chairs the Forum of National Representatives (see Section 5.6).

The election procedure and rules are detailed in Appendix C.6. The aim of the election rules is to provide an efficient procedure to elect the SP and DSP, avoiding a lack of governance. The election rules and procedures can be changed and refined by the election committee and endorsed by the CB.

5.2.3 Motions and Voting in the CB

Decisions in the CB shall be taken by consensus wherever possible. If a consensus cannot be reached within a reasonable time, the CB chair can decide to call for a vote.

Motions: Any member of the CB can bring up a motion at any time of the CB meetings, or by e-mail at times outside the meetings. To become a business of the CB, the motion needs to be seconded by at least one other CB member.

Voting rights: All members of the CB have equal voting rights and weighting.

Quorum: In an electronic vote, the quorum of 100% is automatically fulfilled because all ET CB members will have the opportunity to vote. In an in-presence vote, a quorum of 50% is needed. The CB Chair has the authority to decide whether an electronic vote is needed.

Majority: Unless specified otherwise, a motion is accepted if it gets a simple majority of 50%. Abstentions (declared abstentions or votes not cast) or blank votes shall not be taken into account in determining the majority. Example: If the CB consists of 100 members, of which 50 members are present for an in-presence vote/election (quorum reached) and 10 of them abstain or cast a blank ballot, the simple (50%) majority will be more than 20 votes $((50-10)/2)$.

Proxies: If a member of the CB is unable to attend an important meeting, he/she/they may send a proxy to attend in his/her/their place. This possibility is limited to exceptional cases and requires the consent of the CB chair.

Procedures: Voting can either be done by acclamation in the CB meetings or by electronic vote. The preference for important decisions should be electronic voting. The decision on the form of voting shall be taken by the Chair of the CB in consensus with the Board, if necessary, by voting on the procedure by acclamation. An appropriate electronic voting and election system will be set up by the election committee (see 5.7.6). In the case of electronic voting, a quorum will be reached by default, as all CB members will be given the opportunity to vote. The basis for the voting/election is provided by the CB Chair, making available the recordings of previous relevant meetings and all other relevant documentation.

5.2.4 Changes of the Bylaws

Changes of the Tier-0 Bylaws can be initiated by

- the ET Collaboration SP
- the ET CB with a motion supported by at least 15% of its total membership
- the Bylaws Updating Committee C.8.

by proposing changes of the Bylaws to the CB. The proposal will be submitted to the CB at least three weeks before a CB meeting, where it will be discussed. It may be amended by the proponents following this discussion. The final version of the proposal is again discussed in a CB meeting and then voted on. Accepting a change of the Bylaws requires a qualified 2/3 majority of votes, excluding abstentions, votes not cast and blank votes. The vote must be done electronically (see C.6).

5.3 Collaboration Spokesperson and Deputy Spokesperson

The ET collaboration is led by the Spokesperson (SP), who is the chairperson of the Executive Board and is responsible for the scientific and technical direction of the Collaboration, following the policies agreed by the Collaboration Board. The SP is the main representative of ET and interacts with the ET Organisation, the international physics community and the public. The SP is elected by the Collaboration Board.

The CB elects the Spokesperson and Deputy Spokesperson (DSP) for a three-year term. The election timing, procedure, and rules are described in C.6. The EVMC 5.7.6 will conduct the elections and revise the procedure if needed. When standing for election, SP candidates must nominate a DSP. The SP and DSP team shall be elected jointly to ensure optimal cooperation between SP and DSP. Each ET member can be elected for the office of SP at most twice, but not in consecutive election periods. A DSP may stand for election as SP in the election period following his/her/their term as DSP. In this case, the former SP cannot be nominated as DSP.

The Spokesperson

- represents the ET Collaboration
 - in front of the Agencies
 - in all the ET Project bodies
 - to the external World (the Public, other GW projects, umbrella organisations (APPEC, GWIC, etc.)
- coordinates the Executive Board
- participates in the Collaboration Board activities and acts as the main link to the Executive Board there
- regularly reports the EB activities to the CB

The SP may delegate responsibilities as needed, including representation to external entities.

The Deputy Spokesperson The DSP collaborates with the Spokesperson in all his/her/their activities and replaces the SP in case of absence.

5.4 Executive Board

The Executive Board (EB)

- manages the core activities of the ET collaboration. The EB has the duty to coordinate the technical and daily activities.
- is composed by ex-officio members and additional members proposed by the SP and endorsed by the Collaboration Board. Ex-officio members will be the Collaboration Spokesperson (SP), the Deputy Spokesperson (DSP) and one delegate of each Specific Board. By default, the chair of each Specific Board is the delegate; in case there is more than one chair, the oldest (in terms of charge) is selected unless there are different agreements in the Specific Board.

The SP can invite (non-EB) members of the ET Collaboration as consultants. The CB chair is invited to all meetings of the EB.

- is led by the ET Collaboration SP.
- members are nominated by the SP and endorsed by the CB.
- submits important decisions to the Collaboration Board for endorsement.
- manages the Service and Standards Board (see 5.7) and the Specific Boards (see 5.8), which can change through the different phases of the project. Currently, the following specific boards have been identified (see figure A.1):
 - The Instrument Science Board (ISB)
 - The Observational Science Board (OSB)
 - The Site Characterization Board (SCB)
 - The E-Infrastructure Board (EIB)
- takes on the duty to realise the various stages of the TDR for ET. The progress will be reported to the CB at every CB meeting.
- proposes, through the SP or DSP, the agenda of the CB meeting to the Chair of the CB.

The work of the EB shall be transparent to the Collaboration. Besides the daily work of the EB, it will hold weekly meetings with as many of its members as possible. Minutes of the meeting will be taken and will be made available to the Collaboration. The SP may decide sensitive topics to be excluded from the public EB meeting minutes.

Decisions of the Executive Board, which do not require endorsement by the Collaboration Board, are taken as follows:

- In general, the EB operates by consensus⁷ in making decisions.
- When a formal vote is needed, either according to some ET policies or due to a lack of consensus, the decision is by a simple majority vote. Each Specific Board and the SSB have each got one vote. The chairs of each board have to agree by consensus on how they are going to vote.

⁷Consensus is achieved when every member either agrees or is willing to set aside their points of disagreement on a topic.

5.5 ET Science Forum

Although the standard and preferred way to participate in the ET Collaboration is through an RU, the Science Forum (SF) allows exceptional individual scientists to participate in ET even if they do not belong to an RU.

If the scientists belong to a national institute, agency or university that is participating in ET through an RU, they should join through this link. If their country participates in the project, they are invited to join through an affiliated institute.

If none of these cases are working, they can apply to join the SF.

After admission, the individual members sign a light CAD (see C.1), such that their contributions can be verified in the CAD review process.

A member of the SF has the right to:

- Access to the ET internal documentation and to some common services
- Participate in the ET meetings
- In front of the agencies use this affiliation in order to ask for funds
- ET SF members will be exempt of common funds
- authorship of Collaboration papers to which the SF member has actively contributed

A member of the SF has the duty to:

- adhere to the Code of CoC
- Actively contribute to the science of ET
- Inform the editorial committee in advance about publications on ET
- Respect confidentiality restrictions imposed by the ET collaboration
- Avoid public contradiction of the scientific and technical choices of the Collaboration/Organisation

If the SF is composed of more than four persons, the SF elects one delegate for the CB by a simple majority election. Election will be triggered by the CB chair. The details of the procedure will be defined inside the SF.

Admission to the SF is decided by the CB, through simple majority vote. The applicant must contact the **SF committee** (the Chair of the CB, the SP and the DSP) in advance and present their contribution proposal. The SF committee can delegate this step to a division or a working group of a Specific Board (see 5.8) and base the decision on their recommendation.

5.6 Forum of National Representatives

Besides the management of the overall (global) ET Collaboration, there will be a need to organise matters at a national level, e.g. arrange for national R&D programs with funding agencies. For high-bandwidth information exchange and coordination, a Forum of National Representatives(FNR) will be formed. The FNR is composed of ET collaboration members chosen by the RU leaders on a national basis. There will be one representative per country. Its mandate is to discuss organisational and scientific aspects of the ET collaboration at a higher and more aggregate level compared to the CB. The FNR is chaired by the CB chair, and the SP is regularly invited as an observer. The FNR meets at least once per year. It has an advisory role to the CB and may produce reports or vision documents. The national representatives are regularly invited as observers to all CB meetings. The members' term is for three years and can be renewed thereafter.

5.7 Collaboration Services and Standards Board

Basic Structure

The CB has created a Collaboration Standards and Services Board (SSB) to address tasks related to the functioning of the ET Collaboration. The board consists of the following committees:

- ET Project Program Committee (PPC)
- ET Early Career Scientists Support Committee (ECSS)
- Member Conduct and Ethics Committee (EMCC)
- Speakers and Awards Committee (SAC)
- Editorial Committee (EC)
- Election, Voting, and Membership Committee (EVMC)
- Meetings and Symposia Committee (MSC)
- Communications and Education Committee (CEC)
- Bylaws Updating Committee (BUC)

Each Board or committee is chaired by a member of the ET collaboration who is elected by the CB for a term of three years, renewable one time (see 5.7.6).

The composition of each committee includes members of the Collaboration willing to serve. After the CB has collected expressions of interest from ET members, the CB chair, the SP and the Chairperson of each committee propose the list of SSB members for endorsement by the CB. It is the responsibility of the CB to ensure a fair representation of the ET Collaboration diversity in the SSB memberships.

The general guidelines for the SSB are the following:

- Each committee may include ex-officio members;
- The number of members in each committee is adjusted by the CB at the time of renewal depending on the upcoming tasks;
- With the exception of ex-officio members, an ET collaborator can only be a member of one SSB committee and should not be responsible for another board (ISB, OSB, EIB, SCB);
- Each SSB Chairperson may choose a Deputy among the members of the committee;
- SSB members should remove themselves from discussions in which they have a direct or indirect conflict of interest unless the Chairpersons of that Board (or the CB chair) request otherwise.

The Chairpersons of each SSB regularly report to the Collaboration Board.

5.7.1 ET Program Committee (PC)

The ET PC is in charge of the aspects related to the ET program. First, it defines the ET project program and the associated tasks that are part of the Collaboration's core research area and that can be counted as contributions by the RUs. Then, it negotiates and reviews the non-legally binding agreements, signed by each RU leader, which describe the RU's contribution to the proper operation and running of the Collaboration.

Composition: PC members are ET collaborators with high scientific expertise and solid experience in project management, such as those who hold or have held leadership positions in the ET collaboration, in other major international scientific collaborations or in other national or international organizations. They should be chosen to represent all fields of ET research domains.

Ex-officio members:

- SP and DSP;
- The chair of the CB
- The Directorate of ETO;
- One delegate from each specific board (EIB, ISB, OSB, SPB)

Goals and tasks: The PC is in charge of formulating and updating the program of ET. This program must be consistent with the ET CDR and with the TDRs to come. It has then to be approved by the CB by majority vote and made available as a public document in the ET Technical Documentation System (TDS). The presence of ETO Directorate in this committee is to ensure that this document reflects the priorities and the mission of ETO and to refer to the ETO stakeholders.

The ET program is then used by the PC to define the list of tasks relevant to the ET Collaboration. This catalogue of tasks forms the basis for deciding whether pledged collaboration contributions from RUs or individual members are eligible for the FRTE or FTE count. This catalogue of tasks has to be endorsed by the CB by a simple majority vote. The Collaboration Agreement Document (CAD) describes the non-legally binding agreements of the RUs involved in the collaboration. It defines the level of participation in the ET Collaboration, and it is signed by the head of a RU. With this document, the RUs pledge the promised work and amount of workforce to the Collaboration and will be morally bound to the promise.

The PC is in charge of negotiating the CADs with new member RUs and to annually critically comparing the performance of the ET Collaboration RUs against their past pledges as documented in the CAD Annexes and reviewing their proposed work as described in the new CAD Annexes. The PC also keeps track of the contributions of the individual members of the SF. This Committee then makes recommendations to sign after specified changes or not to sign each RU's CAD. Outcomes of this annual CAD Review are proposed by the ET SP and endorsed by the CB through simple majority vote. The procedure of the review is described in [C.1](#)

timeline In the first three years of existence of the Collaboration, i.e. until June 2025, the PC will elaborate the procedures for the above goals and tasks and set up the required subcommittees. No CADs will be signed or CAD reviews performed during this time. The RU leaders are responsible for ensuring that reported FRTEs (later FTEs) are correct.

5.7.2 ET Early Career Scientists Support Committee (ECSS)

The ET ECSS's mandate is to support Early-Career scientists who are members of the collaboration. "Early-Career Scientists" are students or scientists with less than eight years after their PhD.

Composition: The ECSS should include seven junior scientists, with at least one from each of the following career levels: doctoral student, postdoctoral scientist, junior academic, and research staff.

Goals and tasks: The goal of the ECSS is to represent and advance the interests shared by the ET early career scientists by:

- Regularly gathering feedback from the ET young scientists about any relevant proposals and issues concerning the ET early career community;
- Proposing concrete actions in support of the ET early career scientists. Examples may include: mentorship initiatives; advice to maintain a healthy and well-balanced lifestyle; exchange of information regarding job openings and grant opportunities; fostering of collaborative activities; soft/transferrable skills development; guidance for new early career scientists to becoming productive ET members; initiatives to increase participation of the early career scientists in leadership roles within ET;
- Periodically reporting to the CB Chair about the gathered feedback.

5.7.3 Member Conduct and Ethics Committee (EMCC)

The ET Collaboration is committed to creating positive work environments where each participant feels valued and respected and where everyone adheres to the same high standards of personal behaviour. Creating an environment conducive to scientific dialogue is the responsibility of all members of the collaboration, who, in a diverse environment, must behave in a professional manner and be free from all forms of discrimination and harassment. By treating all of its members with respect and consideration, the ET Collaboration fosters the creation of collegial, inclusive and professional workspaces.

All members of ET must comply with the rules of ET, in particular those defined in the ET Bylaws and those on safety. All members of ET must adhere to the ET (and ETO in the future) codes of conduct and guidelines, including rules for publications.

The EMCC also oversees and documents the Collaboration's activities relevant to ET members' diversity, equity, inclusion, access and ethics aspects.

Composition: Members of EMCC are chosen from a broad cross-section of the collaboration to minimise conflicts of interest. Ex-officio members:

- The ET Ombudspersons;
- The ET SP and DSP;
- The Chair of the CB.

Goals and tasks: Matters to be addressed by the EMCC may be brought to the committee's attention by the Spokesperson or by any member of the Collaboration. The EMCC will advise the ET Collaboration Spokesperson and other members with administrative duties concerning conflicts of interest and ethical standards, following the procedures detailed in a document that the EMCC prepares as its first task after being formed. The Committee will make decisions on specific issues when its opinion is requested. The Committee shall investigate such requests and will bring the issue to the Collaboration Board if it thinks it needs Collaboration Board action.

The Committee will revise, update, or clarify the ET Collaboration Code of Conduct (see section 4) and the ET Collaboration Policy for Formal Complaints and Grievances (see Appendix E), as necessary. Each RU leader is then responsible for ensuring that each member of ET in that RU is aware of the rules contained in the ET Code of Conduct.

The EMCC also prepares and maintains a public document that contains quantitative goals and best practices guide for the Collaboration in terms of diversity, equity, inclusion, access and ethics. This document should be updated as needed, at least annually, with an up-to-date version to be available before the beginning of the annual ET Collaboration CAD review cycle.

5.7.4 Speakers and Awards Committee (SAC)

The Speakers and Awards Committee is responsible for promoting ET Collaboration scientific accomplishments by actively cultivating opportunities for ET Collaboration members to present ET Collaboration results to the broader scientific community through invited talks at conferences and meetings. Also, the committee is responsible for broadening participation in these meetings among ET Collaboration members.

The SAC also has the task of actively seeking opportunities for ET Collaboration members to be nominated for scholarly prizes, awards, and fellowships by following policies and procedures defined in the ET Speakers and Award guidelines.

Composition: At least six members from the ET collaboration including the elected chair of the SAC. Ex-officio members:

- The ET SP or deputy SP;
- One delegate from each specific board (EIB, ISB, OSB, SPB).

Goals and tasks: The SAC receives requests for speakers and finds speakers to present on behalf of the Collaboration at conferences and meetings. The SAC proactively contacts conference organising committees to seek speaking opportunities for ET Collaboration members. To coordinate these presentations given by ET Collaboration members, the SAC has the responsibility:

- To foster opportunities for ET Collaboration members to present ET results to the broader scientific community through invited talks at conferences and meetings, as well as in the public forum by contacting the conference organising committee;
- To receive requests for invited presentations on behalf of the ET Collaboration for conferences;
- To solicit names of speakers in discussion with the chairs of the specific boards (EIB, ISB, OSB and SPB) and Divisions;
- To select speakers keeping in mind all aspects of diversity (gender, ethnic, geographical);
- To manage the review of abstracts and presentations given by Collaboration members on ET work or results;
- To maintain an archive of presentations accessible to all members of the Collaboration;
- To advise the CB and EB on presentations and rules;

- To collect nominations for and select winners of awards designed to recognise outstanding contributions to ET by early career members of the Collaboration.

The SAC is responsible for ensuring an equitable distribution of talks throughout the whole Collaboration and the participation of young ET collaborators. The Committee also acts to promote and maintain a high standard of ET presentations.

Invitations received by an ET Collaboration member for talks about ET at an international workshop or an international conference are regarded as invitations to the Collaboration. Such invitations may not be accepted by members of the ET Collaboration without prior approval of the SAC. All talks given on behalf of the ET Collaboration require SAC pre-approval. Invitations received by an ET Collaboration member for seminars and colloquia are regarded as invitations to an individual. No prior approval is required; however, the speaker should inform the SAC about this presentation.

The SAC is also in charge of organising the recognition of outstanding contributions to ET towards instrumentation, operations, analysis, technical support and industry. Following policies and procedures described in the ET Speakers and Award guidelines, a document written and maintained by SAC and endorsed by the CB by simple majority vote, the SAC continuously seeks opportunities for ET Collaboration members to be nominated for scholarly prizes, awards, and fellowships.

5.7.5 Editorial Committee (EC)

The Editorial Committee is a Standing Committee of the Collaboration Board created to oversee the publication of ET papers, including conference and internal Notes, and to ensure their high quality. The EC is responsible for maintaining adherence to the Publications and Presentations policy (see C.5), following the procedure in the ET Collaboration publication and presentation policy document, to be realised and updated by the EC and endorsed by the CB by simple majority vote. The SP is responsible for overseeing the work of the EC, but the rules concerning publications must be approved by the CB.

ET scientific documents are classified into five categories:

- ET Collaboration publications co-signed by all eligible ET authors;
- ET Specific Board publications co-signed by a limited subset of eligible ET authors, generally from a Specific Board (EIB, ISB, OSB or SPB);
- Conference Proceedings;
- Conference notes, which are public documents provided in support of preliminary results shown at conferences;
- Internal notes, which are private documents accessible only by the ET Collaboration members.

Apart from internal notes, the EC is in charge and has to be consulted in order to determine which category a given document belongs to.

Composition: The EC comprises at least six members selected among the collaboration in order to cover a wide spectrum of expertise. Ex-officio members:

- The ET SP and DSP.

Goals and tasks: The duties of the EC are:

- To manage all publications and proceedings involving the ET Collaboration and its members;
- To oversee papers led by the Collaboration or by one of its Specific Boards (EIB, ISB, OSB, and SPB); To organise internal reviews in order to meet scientific as well as editorial standards by setting up “Paper Review Committees” (PRC) which will manage circulation of such papers and collect feedback;
- To manage the author list of such Collaboration or Specific Board papers; to collect exceptional requests beyond the nominal author list.
- To recommend the approval of Collaboration or Specific Board papers to the CB and EB.
- To manage the review of conference proceedings written by Collaboration members on ET work or results.
- To manage the review of short author-list papers involving Collaboration members to ensure rules are followed. To manage the circulation of such papers and collect feedback on content and author list.
- To maintain an archive of publications accessible to all members of the Collaboration.
- To advise the CB and EB on publications and rules.

5.7.6 Election, Voting, and Membership Committee (EVMC)

As part of its operation, the ET Collaboration includes an Election, Voting and Membership Committee whose responsibility is organising and overseeing all the Collaboration elections and voting processes, including setting dates, soliciting nominations, carrying out the elections, and informing the Collaboration of the results.

Composition: The committee is composed of a chairperson and six members.

Goals and tasks: The EVMC regulates the procedures followed in carrying out the set of elections in the Collaboration and establishes an election calendar to standardise the timing of the different elections in order to guarantee a fair and transparent electoral process and a timely appointment of candidates to vacant positions. The EVMC works with the EB to keep track of all mandates in order to organise elections and appointments. With this purpose, the committee should provide an electronic voting system for elections in the various boards and committees of the Collaboration. Electronic voting in the context of the Collaboration means that voting is done offline through a dedicated system where the voting person can electronically access the wording of the motion or election to vote on, access information like candidate statements or other additional information, cast the vote and get confirmation on the reception of the vote cast.

Each year, several elections and appointments must be made to different positions within the Collaboration. These are arranged in two seasons of election and appointment, one from January to March and another from June to August. The scheduling of the elections to one or the other of these seasons must be done considering the terms and staggering of the terms for the relevant posts as specified in the relevant sections of the Bylaws. The EVMC takes care of all aspects of ET Collaboration membership as detailed in appendix C.6. For example, this committee can be solicited to review the ET Membership Database when preparing the electoral list before an election or to check ET membership of candidates for a responsibility appointment or of candidates for an award.

Key positions in the ET Collaboration are partly filled in a top-down way and partly in a bottom-up election process as follows:

- The SP and DSP are elected by the CB (see 5.7.6).
- The chairperson of the CB is elected by the CB (see 5.7.6).
- Chairpersons of the Specific Boards (ISB, OSB, EIB, SCB) are proposed by the Spokesperson and endorsed by the CB. The other members of the Specific Boards are proposed by the corresponding chairpersons, after a call for volunteers, and endorsed by the CB.
- Chairpersons of the Divisions are proposed to the SP and the CB by the Specific Board chairpersons and then endorsed by the CB.
- Chairpersons of the working groups are proposed to the board chairpersons by the division chairpersons and then endorsed by the CB.
- Chairpersons of the SSB are elected by the CB. The other members of the SSB are proposed by the corresponding chairpersons, the SP and the CB chair after a call for volunteers and endorsed by the CB.
- Acceptance of new RUs is voted upon by the CB.

Positions filled in the top-down procedure shall expire even after the replacement of more senior positions until the end of their term (or early exit of the person) and shall only then be refilled. Since many positions are filled at the beginning of the Collaboration, a mechanism must be created to ensure this.

Spokesperson and Deputy Spokesperson Election

- The EVMC should initiate the election process by contacting the CB, including the incumbent SP and DSP, and informing them of upcoming elections due to term expiration.
- The EVMC should then contact the Collaboration members and solicit self-nominations of teams for the position of SP and DSP, giving no less than a one-month period for response. The self-nominations have to contain short biographies of the nominees and a personal statement on the intended goals of the team.
- The list of candidate teams and their personal statements provided should be posted by the EVMC on an internal Collaboration website, accessible to the full Collaboration for at least one month's duration.

- If the number of standing teams is greater than four, the EVMC will hold a vote by the CB, open for one week, to determine the four candidates receiving the most votes and will continue the run-off elections with these four candidate teams.
- If the number of nominated candidate teams is less than or equal to four, the candidate teams will be asked to give a presentation of their plans as SP/DSP team to the whole Collaboration on the occasion of the next monthly Collaboration meeting.
- A vote by the ET CB should open no sooner than one week after the Collaboration monthly meeting and remain open for one week. The SP/DSP team elections will be done electronically by secret ballot.
- If one team gets an absolute majority, this team wins the elections. If there is no absolute majority, the CB will elect a winner by subsequently eliminating the one with the least number of votes in run-off elections ⁸.
- The EVMC will announce the results of the elections. The statistics of the vote will be released.

The process is illustrated in figure 3.

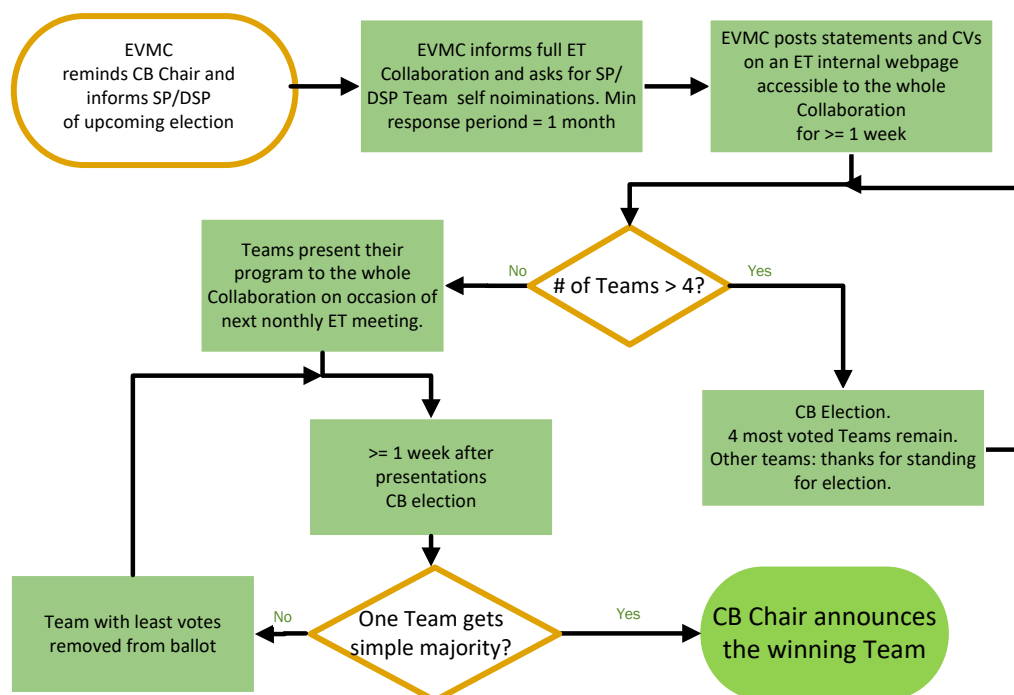


Figure 3: Spokesperson / Deputy Spokesperson election scheme

CB Chairperson election

- In good time before (1) the CB chairperson's term expires, (2) the CB chairperson has indicated the intention to step down, (3) or for any other reason, the EVMC must initiate the election process by contacting the CB, informing them of the upcoming election and asking for nominations to the whole Collaboration, giving no less than a one-month period for response.
- The EVMC will contact all nominees to confirm or decline their willingness to stand for election and will ask those running for election to provide a brief biography and personal statement. The information will be made available on the CB wiki pages for at least one week.
- A vote by the CB should open the day following the CB meeting and remain open for one week. The CB Chairperson election will be done electronically and by secret ballot.
- If a candidate receives an absolute majority, they win the election. If no candidate achieves an absolute majority, there will be a run-off election between the two most successful candidates.

⁸This method of several "small steps" will yield a similar result as a Condorcet method. It requires more voting steps but has the advantage that the CB members feel they have actively chosen the winning candidate. It is improbable that the maximum number of four elections will be needed without reaching a simple majority first.

- The EVMC will announce the results of the elections. The statistics of the vote will be released.

The process is illustrated in figure 4.

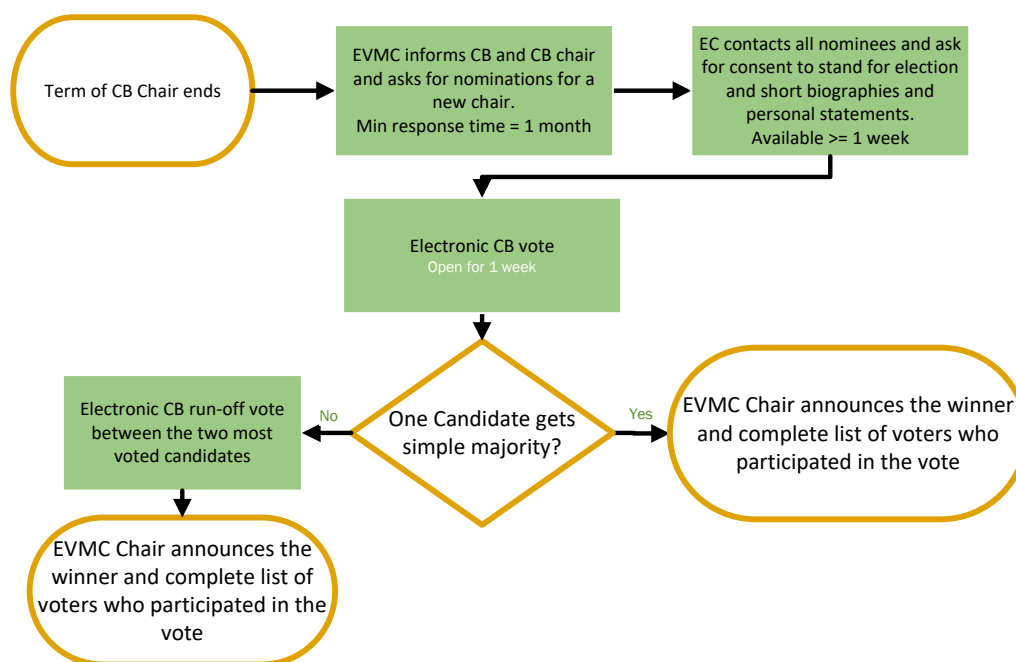


Figure 4: CB Chairperson election scheme

5.7.7 Meetings and Symposia Committee (MSC)

The Committee is responsible for organising and coordinating the meetings of the Collaboration, following the Guidelines for Meetings and Symposia. The MSC is, in particular, responsible for encouraging and collecting applications to host the ET collaboration meetings and ET Symposium and for preparing for the decision-making of the CB.

Composition: Ex-officio members:

- The ET SP and DSP;
- One delegate from each specific board (EIB, ISB, OSB, SPB);
- The EMCC chair;
- Two ET members who have been the chairs of the local committees of the two most recent ET-organised Collaboration meetings.

Goals and tasks: <https://www.overleaf.com/project/60338f8f936f550e79818fab> After having established the specifications for the organization of an event, the MSC will collect applications to host the ET collaboration meetings and ET symposium at least six months before the event is held. The MSC will then analyse the applications and organise their presentation and discussion during a CB meeting. The final choice has to be endorsed by a simple majority vote of the CB. Once a meeting host is selected for a future meeting, the chair of its local organising committee will also serve as a member of the Meetings and Symposia Committee. Additional members can be recruited in consensus with the SP (and with notification of the CB) if deemed necessary. It is important to grant diversity in the committee composition, including in terms of research areas and, if possible, geographic origin.

Some meetings will be held in close partnership with other observational collaborations, following agreements formalised in memoranda of understanding. In that case, the ET MSC will cooperate with their counterparts as specified in the agreements.

The Guidelines for the organization, coordination and conduct of meetings and symposia shall be drafted by the MSC as one of the first action items after its establishment. The MSC is in charge of updating this document as the need arises and proposing it for endorsement by the CB by simple majority vote.

5.7.8 Communications and Education Committee (CEC)

Disclaimer: The description of the CEC given in this version of the Bylaws is indicative of the goals and procedures of the committee and will be subject to change after the creation of the common communications office together with ETO.

The communications and Education Committee (CEC) is responsible for overseeing and documenting the Collaboration's activities in education and public outreach. It is also responsible for formulating the Collaboration's strategic plans to harness the excitement and enthusiasm generated by GW research to inspire and educate students and the general public in astronomy and fundamental sciences.

The CEC program of activities and priorities is shaped by the following general goals: to communicate ET results in an accessible way to the world (physicists, students, and the general public); to develop educational resources that inspire and train the next generation of scientists and develop general scientific literacy; and to advocate for future development and growth in our field, in partnership with the ET Collaboration leadership, the ETO PD, and the broader GW and EM astronomy communities.

The CEC coordinates communications, education and public outreach projects and activities undertaken across the ET Collaboration through its standing committees:

- The Formal Educational Committee coordinates educational activities taken on by ET Collaboration entities.
- The Informal Education and Public Outreach Committee supervises the Collaboration's informal education and public outreach activities.
- The Professional Outreach Committee manages the Collaboration's interaction with the scientific community, such as at conferences and meetings.
- The ET Web Committee maintains and hosts both the internal and the public ET web pages.
- The Media Relations Committee is the ET forum for coordinating media activities, particularly those associated with formal announcements of scientific results or other important milestones. It coordinates as needed with partner collaborations.
- The Magazine Committee publishes twice a year the Einstein Telescope Magazine, which details the latest research, news and personalities across the diverse group of ET Collaboration members.

Composition: The CEC is managed by a steering committee, whose members are the board chair and one representative of each of the above committees. Additional members of the CEC steering committee are appointed by the CEC chair for a three-year term in consultation with the SP. The CEC steering committee also includes a representative from the (ETO + Collaboration) Communications Office, who covers a spread of interests and expertise in formal and informal education, media relations, and public and professional outreach.

Goals and tasks:

- The CEB holds regular "Education and Public Outreach" (EPO) telecon meetings, open to all members of the ET Collaboration, at which communication, education and public outreach activities and projects are presented and discussed. Agendas and minutes for these meetings can be found on the ET wiki.
- These board-level EPO meetings aim to facilitate the sharing of information and best practices across all of the CEB's standing committees - also recognizing the strong overlaps and synergies between the different committees' activities and projects.
- Normally, the frequency of the board-level EPO meetings is at least once every two weeks, with a weekly frequency at particularly busy times (e.g., prior to major announcements). The CEB's standing committees may hold additional individual committee meetings at other times as appropriate.
- Additionally, an Eastern Longitudes division-level telecom is held once per month at a time that is more suitable for ET groups in India, Australia and the Far East - as well as colleagues from associated collaborations.
- The CEB chair provides an update to the ETO twice a year, on a cadence normally staggered with Collaboration meetings.
- The CEB is responsible for preparing and maintaining a White Paper relevant to the Collaboration's plans and activities for communication, education and public outreach, with an up-to-date version to be available before the beginning of each ET CAD review cycle. This White Paper is written in close cooperation with the EPO teams of other active GW Collaborations, e.g., LSC, Virgo, KAGRA, or CE.

- The CEB is responsible for leading the development of press releases on behalf of ET Collaboration and also for coordinating ET Collaboration press conference events. Final approval for these press releases and events will be sought in agreement with the ET Project Directorate. (PV: In working mode, it is the RI which will be leading the Press release).

5.7.9 Bylaws Updating Committee (BUC)

The Bylaws Updating Committee is a committee of the SSB with the responsibility to keep the Bylaws up to date.

Policy As a standing committee of the SSB, the BUC can initiate changes to the Bylaws by proposing them to the CB at any time.

Composition: The BUC is composed of:

- the CB chair,
- the SP and/or the DSP,
- up to xxx members from the CB.

Goals and tasks: The tasks of the BUC include:

- regularly check whether the Bylaws need updating
- coordinate the process of changing the Bylaws
- inform the ET Collaboration about changes of the Bylaws
- inform ETO about Bylaws (Tier-0) changes

5.8 Specific Collaboration Boards

The Specific Boards are a collection of operative elements of ET that deal with the definition, implementation and management of specific aspects of the project. Currently, there are four Specific Boards: the Instrument Science Board (ISB), the Observational Science Board (OSB), the Site Preparation (SPB) and Site Characterisation Board (SCB), and the E-Infrastructure Board (EIB).

The mandate of each of the Boards includes to continuously monitoring their own performance and adapting their internal rules to the needs of ET. The mandates, policies and procedures are considered Tier-1 of the Bylaws. Modifications can be initiated and proposed by the Boards themselves and have to be presented to and approved by the CB.

At the end of a mandate and after consultation with the EB, the SP shall propose Board Chairs to the CB for endorsement. These mandates are valid for 4 years, with a preference not to renew.

5.8.1 Instrument Science Board (ISB)

The ISB deals with all technical and scientific matters of the instruments comprising the ET observatory. The Infrastructure and the beam pipe vacuum system are under the responsibility of the PD. The ISB will provide the ET Technical Design Report (TDR) of the detectors in an iterative process starting from the ET Conceptual Design Report (CDR). The timing will be guided by the timetable indicated in the overall project plan. The ISB will also identify missing technologies and suggest a plan for R&D activities. For more details and the ISB Mandate see ET-0085A-20 (https://apps.et-gw.eu/tds/?call_file=ET-0085A-20_MandateAndOrganigramOfTheIntru.pdf).

5.8.2 Observational Science Board (OSB)

The OSB will detail the ET science case, evolving from the current conceptual level toward the future implementation of the data analysis environment of ET. The OSB will detail the possible science in ET, will prepare the data analysis requirements, and will indicate the computing requirements for ET. The mandate and the organization of the OSB are described in ET-041A-21 (https://apps.et-gw.eu/tds/?call_file=ET-0401A-21_OSBOrganisation.pdf).

5.8.3 Site Characterization Board (SCB)

The SCB will characterise the candidate sites. It will measure the environmental conditions at the sites and determine the impact on the ET project in order to compare the candidate sites on a scientific basis.

The mandate and the organization of the SCB are described in ET-0084A-20 (https://apps.et-gw.eu/tds/?call_file=ET-0084A-20_MandateOfTheSitePreparationBoa.pdf).

5.8.4 E-Infrastructure Board (EIB)

The mandate of the Computational Infrastructure board is to design, create and operate an evolving, efficient and functional e-infrastructure environment at a reasonable cost for the collaboration. Initially, the focus will be the development of a Computing Model for the ET. Details of the mandate and of the organization are available in the ET-0323A-21 document (https://apps.et-gw.eu/tds/?call_file=ET-0323A-21_EInfrastructureBoardMandate.pdf).

6 Collaboration meetings

Since ET is a European Project and Collaboration, meeting places and times shall preferably be chosen to facilitate participation from the European area. Exceptions can be made in special cases, e.g. for meetings that are connected to other events.

Regular meetings:

- The ET Symposium will be held once a year and will be open to everyone (internal or external to the Collaboration) wishing to participate. Details (how often, preparation, procedures for announcing, procedures for conducting the meetings, the procedure for cancelling or shifting meetings) are defined by the Meeting and Symposia Committee (See 5.7.7)
- An additional ET "annual meeting" is held once a year and is open to all members of the ET Collaboration. At these annual meetings, internal matters can be discussed that are not (yet) intended for public disclosure. Upon request, the CB may approve exceptions and accept external participants. This can be done by acclamation at the regular CB meetings.

- In principle, the meetings of the CB take place every month. The CB chair can call for exceptional meetings at any time.

Each of the other Collaboration sub-bodies arranges meetings according to their internal rules and procedures. All collaboration meetings are listed (well in advance) in a calendar accessible to all ET Collaboration members. The responsibility of listing the meeting is with the chair(s) of the involved groups (working group, division, board, Collaboration). The meetings shall be as open for participation as possible. Participation rules are set by the chair(s) of the respective groups.

Extraordinary meetings can be called for by all boards and committees based on the need.

The Collaboration will strive to provide all necessary technical and human resources to enable participation in the meeting both remotely and in-person..

7 Common funds

The main expenses for realising and running the ET observatory will be covered by a common budget realised and managed through ETO. In parallel, the ET Collaboration may establish common funds at the Collaboration level by collecting contributions from the Collaboration members. The CB has the power to set the amount and rules for these common funds. Details, including the quorum and majority required to amend these rules, are set out in Appendix D.

Appendices

A Appendix ET Organisation - ET Collaboration relations

The relationship between ETO and the ET Collaboration must be a synergistic one. The scientific expertise and the majority of the scientific workforce are in the ET Collaboration, while ETO manages the ET Project.

The agencies and institutions that support ET will define the ET governance. The eventual outcome of this activity will be the creation of the legal entity of ET. This activity goes beyond the scope of this document and beyond the remit of the ET Collaboration, but for a better overall context, we report here on some key governing bodies of this part of the Einstein Telescope enterprise, sketched in Figure A.1.

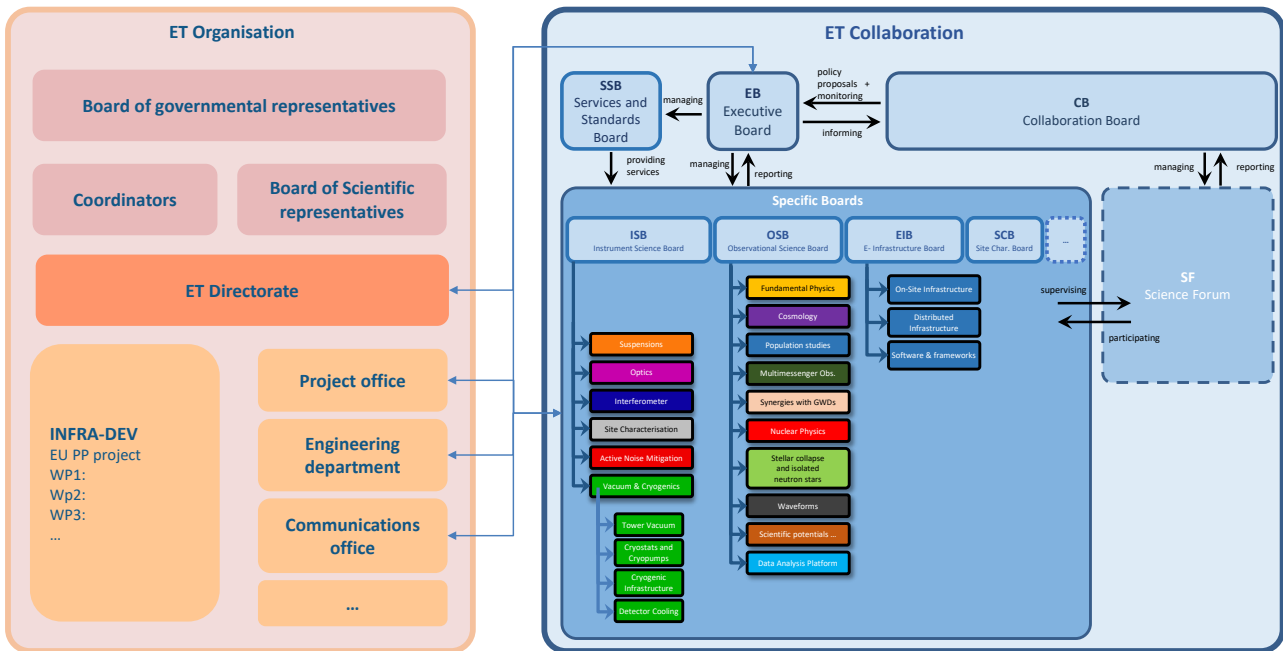


Figure A.1: Governance scheme proposal as of mid 2023.

A.1 ET Organisation Responsibilities

The Mandate and the responsibilities of the ET Organisation (ETO) are not part of the Bylaws of the ET Collaboration and are described in a separate document (see <https://apps.et-gw.eu/tds/?content=3&r=18198>)

B Appendices Specific Boards

B.1 Instrument Science Board

The first objective of the ISB is to deliver the ET Technical Design Report (ET-TDR) of the detectors, starting from the CDR. The TDR production will be an iterative process, and its timing is defined in the overall roadmap of the project.

The second objective of the ISB is to identify the missing technologies and suggest a plan for R&D activities. This must be a living plan, regularly updated. The first delivery of this plan is expected in March 2021. The original document describing the mandate of the ISB is ET-0085A-20.

The current structure of the ISB is shown in Figure B.1 (ET-0033C-21).



Figure B.1: Instrument Science Board organisation scheme (June 2023)

In the ISB, the Vacuum Working Groups has a special role, as its task is tightly connected to the work done on the Beam tube vacuum inside the Project Office. All scientific work related to these topics will be done inside the collaboration, while the management, financial planning, engineering, legal framework, and formal aspects will be done in the Project Office. The mandates, defining responsibilities and detailing tasks will be defined in a separate document (Currently in <https://apps.et-gw.eu/tds/?content=3&r=17260>, regularly to be updated)

B.2 Observational Science Board

The current structure of the OSB is shown in Figure B.2

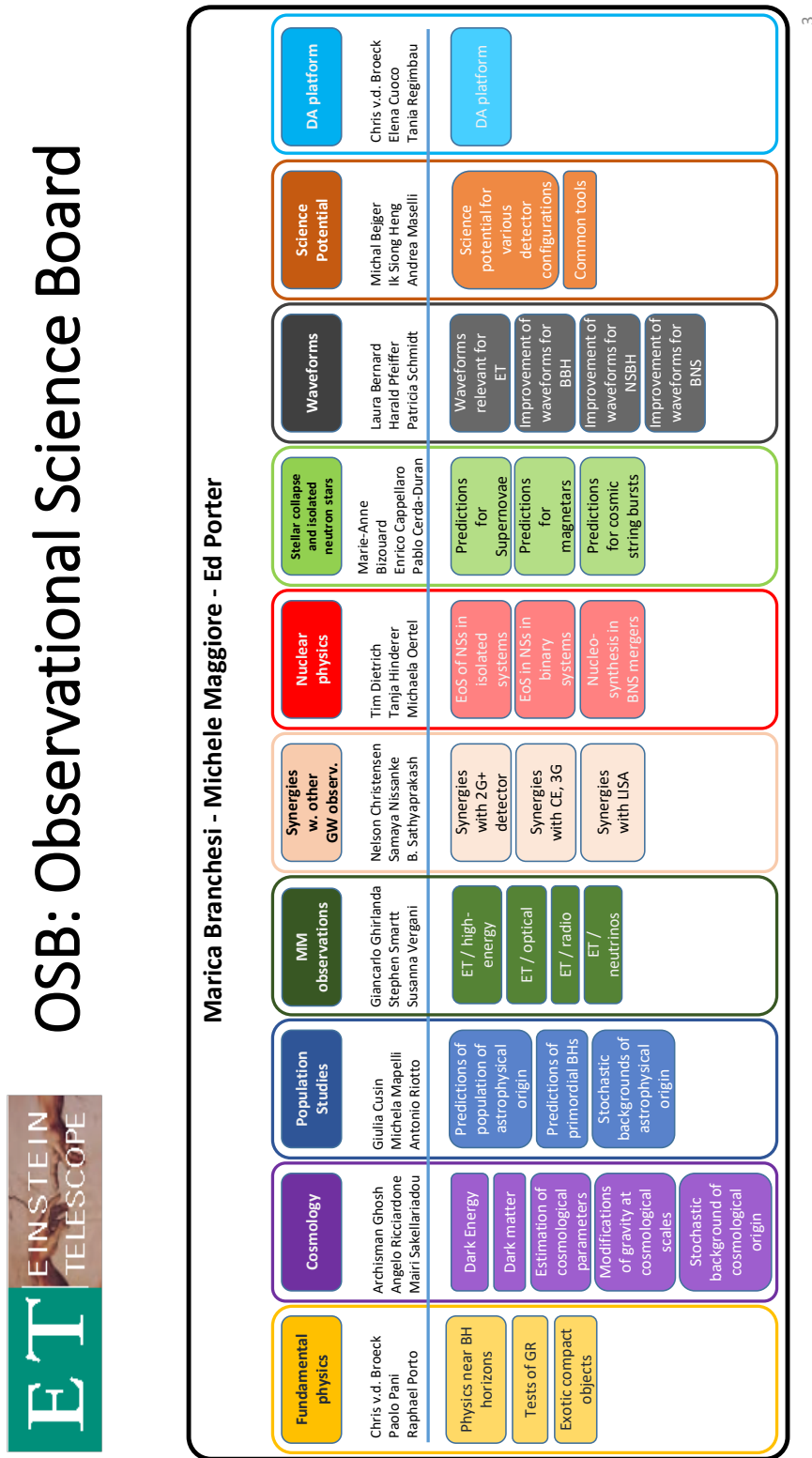


Figure B.2: Observational Science Board organisation scheme (March 2022)

The mandate of the OSB is detailed in ET-0401A-21 (<https://apps.et-gw.eu/tds/?content=3&r=17675>).

B.2.1 Mandate

The Observational Science Board (OSB) envisages to develop the Einstein Telescope science case, to start building the scientific community around it, and to bring it to a scientific maturity to exploit the data taken

when ET will start operation. The OSB main goals, for an estimated timeline of the next four years, can be summarized as follows:

- Develop the ET science case to help the instrument technical development and implementation, and later to fully exploit the specific capabilities of the ET detector;
- Stimulate the interest of the scientists going beyond the gravitational wave community, for example involving cosmologists, nuclear physicists, high-energy physicists, astronomers and astrophysicists;
- Build the synergy, collaboration and coordination with other gravitational-wave, electromagnetic, and neutrino observatories which will operate together with ET or observatories able to give complementary insights into the ET science;
- Identify the specific data analysis and computing needs for ET and begin the development of data analysis tools and algorithms.
- Involve students, post-doc and early career researchers, and contribute to training the young community, which will lead the ET data analysis and scientific interpretation when it will be operative;
- Contribute to generating broad public interest in the ET science.

In order to achieve the above goals the OSB stimulates and coordinates activities related to ET in the domain of theoretical physics/cosmology, astrophysics, gravitational-wave data analysis, and synergies with multi-messenger observations; provides and develops theoretical motivations for the ET Science Case, develops ET-related codes and tools and make them available to the community, starts exploratory work toward data analysis, and provides a pool of competences on the theoretical side that can address questions arising from the ET design studies.

Below we discuss specific activities for the OSB to develop the ET science case, build the ET science community, and stimulate the public interest. In order to carry out such activities, the OSB will be supervised and coordinated by three Chairpersons and will be organized in Divisions (Divs). Division coordinators might further organize their division into Work Packages if they consider this appropriate.

For the first four year period, the ET Steering Committee has appointed as OSB chairs: Michele Maggiore (Fundamental Science, Blue Book coordination), Marica Branchesi (Astrophysics, relations with the astronomical community) and Ed Porter (computing, data analysis). Division coordinators are in principle, appointed for a two-year period. They can be removed earlier in case of lack of progress or renewed if appropriate.

B.2.2 Blue Book

The development of the Science Case will be structured around a ‘Blue Book’, meant as a living document that summarizes and updates original work related to ET. This can be in the form of a summary of relevant parts of papers in the literature, as well as original work performed specifically for the Blue Book. The timeline for the first version of the Blue Book is (tentatively) two years from the beginning of the structuring of the OSB. Taking Summer 2021 as the starting date for the activities, this leads (approximately) to Summer 2023.

The Blue Book will be organized in a series of chapters corresponding to the different Divisions, under the responsibility of the corresponding division coordinators. The division coordinators have the task of organizing the work of the corresponding Division, of contacting and involving in the project the most appropriate persons and managing the team that will be created through broad calls to the scientific community. The overall coordination of the Blue Book will be ensured by the Chairpersons of the OSB. The proposed structure, possibly subject to evolution in time in response to emerging needs, is as follows.

- **Div1:** Fundamental Physics. Physics near BH horizon, tests of GR, exotic compact objects.
Coordinators:
Paolo Pani (Italy, Universit’a di Roma ‘La Sapienza’) Rafael Porto (DESY, Germany) Chris van den Broeck (Utrecht, the Netherlands)
- **Div2:** Cosmology. Dark energy, dark matter, estimation of cosmological parameters, modifications of gravity at cosmological scales; stochastic backgrounds of cosmological origin.
Coordinators:
Mairi Sakellariadou (King’s College, London, UK) Angelo Ricciardone (Padova University, Italy) Archisman Ghosh (Ghent University, Belgium)

- **Div3:** Population studies. Predictions for population of astrophysical origins. Predictions for primordial BHs. Stochastic backgrounds of astrophysical origin.

Coordinators: Michela Mapelli (Padova University, Italy) Antonio Riotto (Geneva University, Switzerland) Giulia Cusin (Geneva University, Switzerland and IAP, Paris, France)
- **Div4:** Multimessenger observations. MMO with electromagnetic and neutrino facilities. High-energy, UV-optical-nIR, mm-radio, neutrinos. Coordinators:

Susanna Vergani (Observatoire de Paris, France) Giancarlo Ghirlanda (INAF, Italy) Stephen Smartt (Queen’s University Belfast, UK)
- **Div5:** Synergies with other GW observatories. Synergies with 2G detectors, CE, LISA. Studies of the ET capabilities in various ground-based network configurations, such as ET+2G, ET+CE. In collaboration with Div1-Div4, Div6, Div7, work to identify the science case benefits of using a network of ground-based detectors. Studies of the potential of multi-band observations with LISA. Together with Div9, work in collaboration with the CE researchers toward the realization of mock data challenges and to solve common problems for data analysis with 3G detectors.

Coordinators:

Bangalore Sathyaprakash (Penn State, USA, and Cardiff, UK) Nelson Christensen (ARTEMIS, Nice, France) Samaya Nissanke (University of Amsterdam and Nikhef, the Netherlands)
- **Div6:** Nuclear Physics. EoS of neutron stars in isolated and binary systems, nucleosynthesis in BNS merger.

Coordinators:

Tanja Hinderer (Utrecht, the Netherlands) Michaela Oertel (Meudon, France) Tim Dietrich (AEI and Potsdam University, Germany)
- **Div7:** Stellar collapse and isolated neutron stars. Predictions for Supernovae, magnetars, cosmic string bursts, other non CBC transients.

Coordinators:

Marie-Anne Bizouard (ARTEMIS, Nice, France) Pablo Cerda-Duran (Valencia, Spain) Enrico Cappellaro (INAF, Italy)
- **Div8:** Waveforms. Study of waveform relevant for ET. Improvement of the waveforms for BBH, NSBH, BNS. Development of waveforms for IMBHs and IMRIs.

Coordinators:

Harald Pfeiffer (MPI, Germany) Patricia Schmidt (Birmingham, UK) Laura Bernard (Meudon, France)
- **Div9:** Scientific potentials of different detector configurations, and common tools. This Division provides a bridge with the Instrument Science Board (ISB) and works in strong collaboration with it. Given the strain sensitivities in different detector configurations provided by the ISB, Div8 develops publicly available tools to calculate the ET capabilities for astrophysical predictions (eg. horizon, range and detection efficiency for different systems of compact object binary and other gravitational wave sources). It also provides freely available software to calculate standardized and official figures of merits for different detector configuration and for different detector networks. Div8 is also responsible for ‘quickly’ responding to needs of the collaboration for presenting plots and results to funding agencies, conferences, etc.

Coordinators:

Ik Siong Heng (Glasgow, UK) Michal Bejger (Warsaw, Poland) Andrea Maselli (GSSI, Italy)
- **Div10:** Data analysis platform. Div10 will have the role of building a common data analysis platform, identifying the best option for computing resources (e.g. shared resources, cloud, etc.), developing solutions to ET data-analysis problems, and harmonizing the data analysis work tuned toward different WPs, ensuring the compatibility of the tools used and avoiding duplication of the work. In order to ensure connection and coordination between the development of data analysis and the physics/astrophysics studies, each researcher working on the data analysis for specific science cases or gravitational-wave sources will be asked to be a member of both Div10 and the relevant(s) physics/astrophysics Divisions (Div1 to Div8). Activities toward mock data challenges should also be started. It is advisable to have a strong connection with similar activities in CE (in collaboration with Div5), given the similarity of the data analysis problems for 3G detectors. The study of the computing need will be performed in strong connection with the Infrastructure Board.

Div10 could possibly evolve into a separate Data Analysis Board, after the four-year timeline covered by this document.

Coordinators:

Tania Regimbau (Annecy, France) John Veitch (Glasgow, UK) Elena Cuoco (EGO, Italy) (+Chris van den Broeck, Utrecht, the Netherlands)

The work will start by identifying the main open questions that ET is expected to answer and which are not possible to address with the current detectors. No publication policy will be enforced at the current stage of development of the OSB, since this would not be attractive to enlarge the community and involve students. The participating groups will be free to publish separately their original results in the usual forms (journals, etc.) The only requirement asked is that, about a week before posting a paper of relevance to ET to the arxiv/journal, the authors will circulate the draft to the OSB. The OSB chairs and DIV coordinators have the responsibility to check that no wrong or confusing statements concerning ET are made, to verify that there is the right recognition of work done by others within the divisions, and to prevent potentially conflictual situations with other ET members. In order to encourage collaboration and the development of the ET community, the DIV coordinators should encourage people to share ongoing projects well in advance with respect to the paper circulation and create an environment where the members of the OSB feel protected in the sharing ideas without being scooped by others. All the members are strictly requested to follow the right code of conduct under penalty of exclusion from the collaboration, and the DIV coordinators are requested to monitor for correct behaviour. In case of conflicts or incorrect behaviour, the members of the OSB are encouraged to contact the DIV coordinators and/or the OSB chairs. The Divisions organized for the writing of the Blue Book are expected to naturally evolve and widen into operative Divisions to be ready for the ET observations. The OSB will monitor and drive this transition.

B.2.3 Div-S: Synergies with future electromagnetic and neutrino observatories

In order to maximize the ET science results, it is of strategic importance that there will be electromagnetic/neutrino facilities optimized to work in synergy with ET. This requires involving the worldwide astrophysical/neutrino communities in the ET multi-messenger science development and being sure that they will undertake all the steps to prepare their communities. As an example, during the discussion with ESO representatives (B. Leibundgut and M. Rejkuba), it has emerged that is timely to start discussions now with the community involved in the present electromagnetic follow-up of gravitational-wave sources (e.g. ENGRAVE) on what are the ESO instruments necessary for the electromagnetic follow-up in the ET era and how to optimize them. The OSB needs to be in tight contact with the other worldwide observers in order to build together science cases and give useful indications to the experimentalists working on the instruments.

In order to enlarge the ET user base is strategic starting to tackle technical issues; for example, start to think with the astrophysicists on how to deal with billions of alerts, and how to make data accessible and usable to a larger and larger community following the FAIR principle. During the discussion with ESO scientists, an interesting example was reported concerning the Atacama Large Millimeter/submillimeter Array (ALMA). The interest in the data and science of ALMA was initially limited to a too-small community (mainly due to the difficult data analysis). The strategy to enlarge the interested community was to start immediately working on making scientific data accessible and on developing tools for data interpretations. ALMA data centres were established well before the ALMA first light. This turned out in a large and diverse community which today uses ALMA data. A similar effort is going on for SKA. The OSB, with the major involvement of Div4 and Div9, has to discuss and define a long-term plan for this.

Besides the development of the multi-messenger ET science case, which will be the domain of Div4, the synergies with other observatories can require external activities; for example, to identify the best instruments to work in synergy with ET, to identify the possible missing synergies and the possible plan to establish a connection, to keep updated information about external experiments, and be sure that other experiments have the correct information about ET, to participate in the development of networking and communication infrastructures, to be updated about synergy fund opportunities, or European project synergy activities. These activities are organized in a separate Division, Div-S, which includes the OBS chairpersons, the Div4 coordinators, and reference people from the external experiments. All the activities of the Div-S need to be developed in tight contact and coordination with the ET Executive Board.

B.3 Electronic/Computational Infrastructure Board (EIB)

The e-Infrastructure for the Einstein Telescope is the combination of the actual computing resources (CPUs, storage, network etc.), the middleware to coordinate their operation, the services they provide to the collaboration and the greater astronomy community, and the common frameworks upon which the user software is developed. User software itself is out of the scope of the e-Infrastructure; however, best practices and tools used for its development are within.

The mandate of the Computational/Electronic-Infrastructure board is detailed in ET-0323A-21 (<https://apps.et-gw.eu/tds/?content=3&r=17593>) as follows:

B.3.1 Scope

The e-Infrastructure for the Einstein Telescope is the combination of the actual computing resources (CPUs, storage, network etc.), the middleware to coordinate their operation, the services they provide to the collaboration and the greater astronomy community, and the common frameworks upon which the user software is developed.

User software itself is out of the scope of the e-Infrastructure; however, best practices and tools used for its development are within.

B.3.2 ET E-Infrastructure

The functionalities the e-infrastructure should provide to the ET include:

- Data transfer and storage: safely and efficiently transfer all data to custodial storage and processing centres, including low-latency transfers;
- Software packaging and distribution: manage software lifecycle, and make packages available ubiquitously;
- Computing power: Provide and manage computing resources (HTC and HPC) for the processing of data, in all computing domains;
- Data distribution: make data available to worker nodes in computing centres anywhere, and possibly also to single workstations, including support to public releases of data;
- High-availability service management: Provide a platform for running the collaboration's services (e.g. alert generation services, event databases,...)
- Data cataloguing and bookkeeping: organise all data and metadata and provide querying and discovering capabilities;
- Job lifecycle management: provide a uniform job submission and runtime environment to research groups;
- High-level workload management: keep a database of all jobs and allow the enforcement of priorities and scheduling strategies; provide support for organized large-scale data processing campaigns;
- Monitoring and accounting: monitor local and distributed computing, checking performance and looking for issues, and provide reliable accounting both at the user/job and site level;
- Authentication, Authorisation and Identity management: Provide consistent AAI across all domains and activities.
- Collaboration services: provide tools for efficient collaboration management, coordination, and outreach (e.g. document repositories, collaborative tools, administrative databases, communication, ...)

The computing resources include:

- the e-infrastructure for the operation of the interferometers,
- the e-infrastructures for the low-latency and offline analysis of data, including centralized and shared distributed resources,
- the e-infrastructure for the management of the collaboration, including outreach activities.

B.3.3 EIB Charge

The mandate of the e-Infrastructure board is to design, create and operate an evolving, efficient and functional e-infrastructure environment at a reasonable cost for the collaboration. Initially, the focus will be the development of a Computing Model for the ET.

- Prepare a plan of the studies and activities that need to be undertaken for the development of the ET computing.
- Propose a computing model and its updates to the collaboration.

The computing model, in its final version, should include:

- The overall architecture of the e-Infrastructure, either as a single integrated system or as a few separate systems (e.g. instrument control and DAQ, low-latency, and offline)
 - A documented way of evaluating the required computing power and storage space from the evolving scientific program of the collaboration
 - Estimates of the involved costs and growth timelines
 - A description of the data flows, with estimates for the needed network performances
 - A description of the User Experience and workflows for relevant activities
 - A description of the tools chosen to provide all the required functionalities (foundation libraries, frameworks, middleware,...)
 - Separate “Work Breakdown Structure” and “Implementation Plan” documents
- Liaise with the existing shared national and international e-infrastructures (EGI, WLCG, EOSC,...) and with other large-scale computing endeavours like the ones by LHC and SKA.
 - Track the technology evolution to adapt the computing model and its implementation to exploit new available technologies, both hardware and software
 - Interact with the entities defined by the Collaboration (participating institutes, common infrastructures,...) to handle the gradual provisioning of the required resources
 - Coordinate the deployment of the required tools and services through succeeding releases
 - Adopt a DevOps-like strategy of continuous deployment of tools and services to verify the match between the Collaboration’s needs and the functionalities provided by the e-Infrastructure.
 - Supervise the ET computing resources and their use
 - Organize the interaction with the user community to gather feedback

The EIB will seek constant interaction with the Observational Science and Instrument Science Boards.

B.3.4 Tasks

- Develop a Work Breakdown Structure for the early stages of the preparation of the Computing Model and Cost Estimates
- Collaborate with OSB to define the initial activities to evaluate actual computing needs
- Collaborate with OSB and ISB to define the data formats (both internal and for public release) and organized data processing workflows
- Liaise with the Numerical Relativity community
- Ensure the accessibility of the data, auxiliary information and the software
- Coordinate the development of the tools for the low-latency analysis and alert generation,
- Participate in the technical development of the alert distribution infrastructure, by liaising with the wider astrophysical community
- Support the development of the tools for the operation of the telescope,
- Coordinate the development of common infrastructural tools and frameworks for the data analysis
- Support the operation of large-scale computing campaigns

- Develop policies and best practices to ensure software quality and encourage/enforce their adoption
- Organize a continuous training programme for both developers and users
- Provide collaborative tools for communication within the collaboration and to the outside
- Coordinate the operation of the collaborative and administrative tools for the management of the collaboration

Finally, we note that the prioritization of the EIB tasks will evolve with the different phases of the ET project. As such, we anticipate that the organizational structure of the EIB will evolve to match the changing needs. Thus, we do not propose an EIB structure here, but rather defer the organization to the moment when prioritization can be assigned to these tasks under the responsibility of the appointed chairs.

B.4 Site Characterisation Board

The work of the Site Characterisation Board is closely related to the Site Preparation Board under the management of ETO. The mandate of the SPB is described in ET-0070A-22. The concrete definition of the mandate and the distribution of tasks shall be discussed and detailed by the SPC once set up and working.

The mandate of the Site Preparation Board is given in ET-0070A-22 at <https://apps.et-gw.eu/tds/?content=3&r=17835>

C Appendices Services and Standards

C.1 ET Program Committee

C.2 ET Early Career Scientists Support Committee (ECSS)

C.3 Member Conduct and Ethics Committee (EMCC)

C.4 Speakers and Awards Committee (SAC)

C.5 Editorial Committee (EC)

This appendix will be created once the Editorial committee is established. A draft is available in the Bylaws overleaf file. Include authorship rights, Publication policy, etc.

C.6 Election, Voting and Membership Committee and Rules (EVMC)

Disclaimer: This section needs to be updated by the committee as soon as it is installed and in operation.

This appendix describes the rules and procedures for the election of the various bodies in the ET Collaboration. All election rules in the Collaboration are proposed by the EVMC and endorsed by the CB.

C.6.1 Introduction

The ET Collaboration is a self-governing Collaboration carrying out measurements of gravitational waves, using them to explore the fundamental physics of gravity, and developing gravitational wave observations as a tool of scientific discovery. The ET Collaboration works toward these goals through research and development of techniques for gravitational wave detection for analysis of gravitational-wave signals, and the development, commissioning, and exploitation of gravitational wave detectors. As part of its operation, the ET Collaboration includes EVMC, whose responsibilities are defined in the following subsections.

The purpose of this *ET Collaboration Election, Voting and Membership Committee Policy and Procedures document* is to:

- regulate the procedures followed in carrying out the set of elections in the Collaboration;
- identify an election calendar to standardise the timing of elections. The goals in formulating this policy and set of procedures are to:
 - ensure a fair and transparent election process in the cases where positions are filled by an election process;
 - ensure timely and appropriate election or appointment of candidates to vacant posts, which are filled by an election process.
- provide an electronic voting system for elections and votes in the various boards and committees of the Collaboration. Electronic voting in the context of the Collaboration means that the vote is done offline through a dedicated voting system, where the voting person
 - can electronically access the wording of the motion or election to vote on
 - can access additional information like candidate statements or other supplementary information
 - can cast the vote
 - get confirmation on the reception of the vote cast

Key positions in the ET Collaborations are partly filled in a top-down way and partly in a bottom-up election process:

- SP + DSP are elected by the CB;
- The Chairperson of the CB is elected by the CB;
- Chairs of the specific boards (ISB, OSB, EIB, SCB) are proposed by the SP and appointed by the CB;
- Chairs of the Divisions are proposed to the SP and the EB by the Specific Board chairs and then endorsed by the CB;
- Co-chairs of Working Groups are proposed to the Board Chairs by the Division Chairs and are then endorsed by the EB;
- the "Communications and Education Committee" chairs are appointed by the CB according to a procedure to be defined in consensus with the Project Directorate;
- all Committees in the "Services and Standards Board" will be elected by the CB;
- the members of the ET Early Career Scientists (ECS) Support (ETECS) Committee will be elected bottom-up by the ECSs;
- Acceptance of new RUs is voted upon by the CB. A simple majority is required for acceptance.

An EVMC is appointed by the SP in order to:

- organize and oversee all election processes, including the nomination process;
- oversee the elections as listed above

The timing of elections and appointments shall be staggered in such a way that new appointments are well spread out in time and massive new appointments are avoided. Positions filled in the top-down procedure shall expire even after the replacement of more senior positions until the end of their term (or early exit of the person) and shall only then be refilled. Since many positions are filled at the beginning of the Collaboration, a mechanism must be created to ensure this.

C.6.2 Election and Appointment Schedule

Every year, several elections and appointments for different positions have to be held within the Collaboration. These are arranged in two Election and Appointment ‘seasons’:

- January - March
- June - August

The scheduling of elections to one or the other of these seasons should be done taking into account the terms and staggering of the terms for the relevant posts as specified in the relevant sections of the Bylaws.

Spokesperson + Deputy Spokesperson election

- The EVMC committee should initiate the process by contacting the ET CB (including the incumbent SP + DSP), and informing them of the upcoming election due to expiration of term.
- The EVMC committee should then contact the full ET Collaboration and solicit self-nominations of teams for the position of SP and DSP, giving no less than a 1-week period for response. The self-nominations have to contain short biographies of the nominees and a personal statement on the intended goals of the team.
- The personal statements provided should be posted by the E&M committee on an internal ET Collaboration website accessible for the full Collaboration for at least one month’s duration.
- If the number of standing teams is greater than four, the E&M committee will hold a vote by the CB, open for one week, to determine the four candidates receiving the most votes and will continue the run-off elections with these four candidate teams.
- If the number of nominated candidates is less than or equal to four, then the slate of candidates will be announced to the ET Collaboration, and the candidates will be asked to give a presentation of their plans as SP/DSP Team to the whole ET Collaboration on the occasion of the next monthly ET Collaboration meeting.
- A vote by the CB should open no sooner than one week after the ET monthly meeting, and remain open for one week. The Spokesperson elections will be done electronically by secret ballot.
- If one team gets a simple majority, this team wins the elections. If there is no simple majority, the CB will elect a winner by subsequently eliminating the one with the least number of votes in run-off elections.⁹
- The EVMC committee will announce the winner and the list of voters who participated in the CB vote.

⁹This method of several “small steps” will yield a similar result as a Condorcet method. (It requires more voting steps but has the advantage that the CB members feel they have actively chosen the winning candidate.) It is very unlikely that the maximum number of four elections will be needed without reaching a simple majority first.

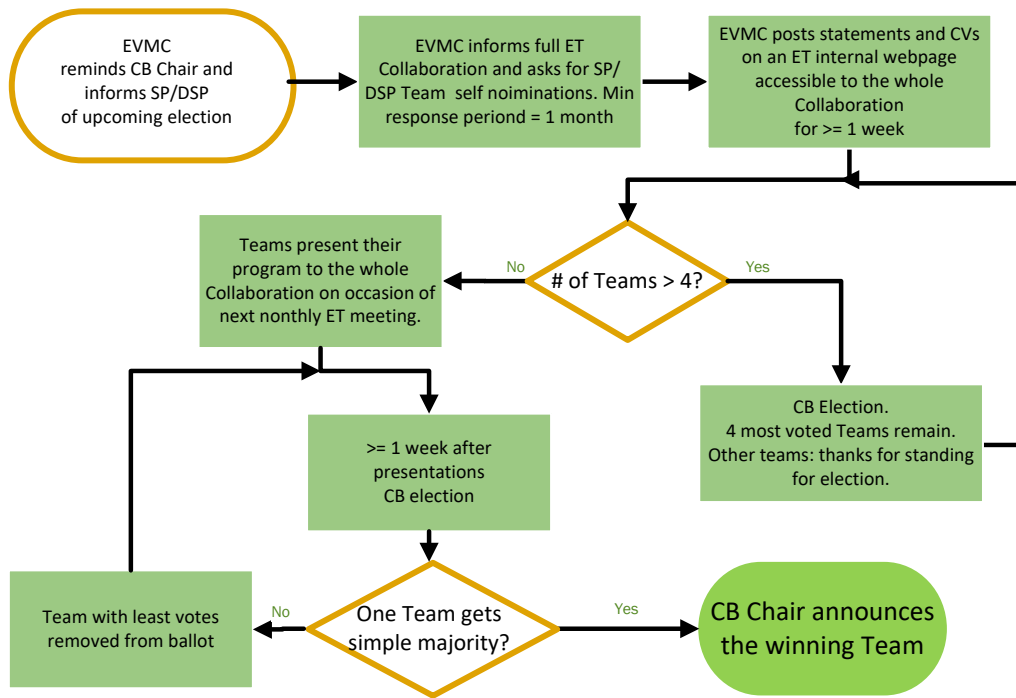


Figure C.1: Spokesperson / Deputy Spokesperson election scheme

CB Chairperson election

- In good time before (1) the term of office of the CB Chair expires (2) the CB chair has indicated his/her intention to step down (3) or for any other reason, the EVMC Committee should initiate the election process by contacting the ET CB, informing them of the upcoming election and ask for nominations, giving no less than a 1-week period for response.
- The Committee will contact all nominees to confirm or decline their willingness to stand for election and ask those standing for election to provide a short biography and a personal statement.
- A vote by the CB should open the day following the CB meeting and remain open for one week. The CB Chairperson elections will be done electronically and by secret ballot.
- If a candidate receives a simple majority, she/he wins the election. If no candidate achieves a simple majority, there will be a run-off election between the two most successful candidates.
- The EVMC committee will announce the winner and the list of voters who participated in the ET Collaboration.

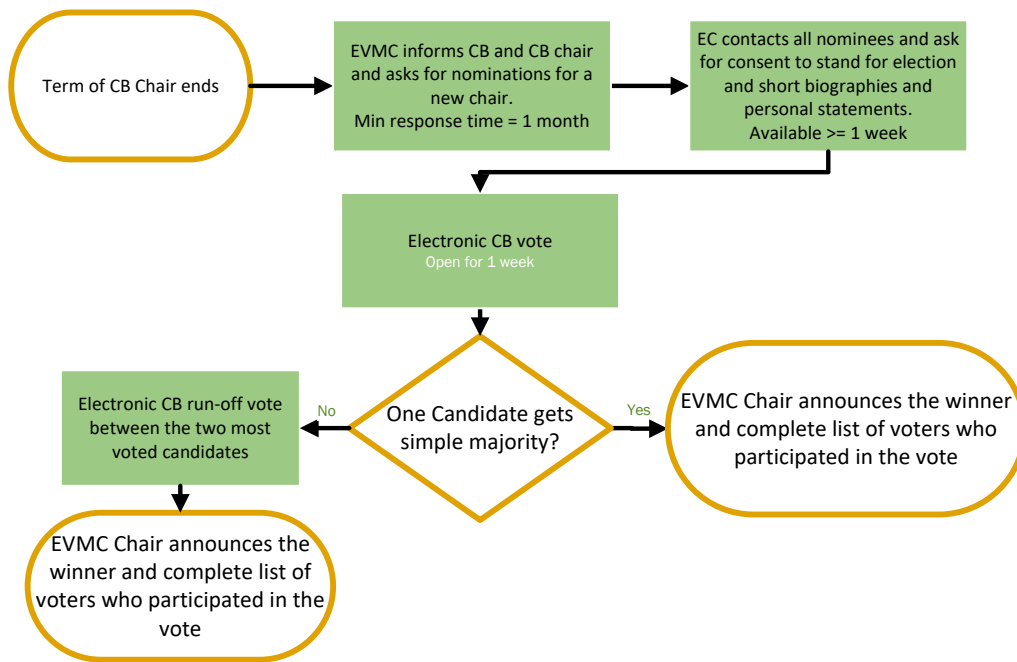


Figure C.2: CB Chairperson election scheme

C.7 Meetings and Symposia Committee (MSC)

C.8 Bylaws Updating Committee (BUC)

The Bylaws Updating Committee (BUC) is a committee of the SSB, with the responsibility of keeping the Bylaws up to the needs of the Collaboration.

C.8.1 Procedures

The BUC will define a procedure to regularly check whether the Bylaws fit the requirements of the Collaboration.

If the Committee determines that changes are needed, it will contact the relevant parties in the ET collaboration to analyse the new needs and develop a proposal for changes to the Bylaws. Proposing and voting on the changes will follow the process described in [5.2.4](#) The need for changes of the Bylaws can be triggered by:

- the SP
- the CB with a motion supported by at least 15% of its total membership
- the BUC committee itself (which can also be contacted by individual ET Collaboration members)

The BUC shall ensure that the current version of the Bylaws is copied to and publically available on the ET TDS.

D Appendix Common Funds

The ET Collaboration foresees some limited Common Funds for common services and tools for the Collaboration. Indicative examples are:

- collaboration repositories
- remote conferencing tools, e.g. Zoom
- common authentication tools
- common editing tools
- common CAD (Computer Aided Design) software
- some funds for meetings and workshops, which are otherwise hard to get
- ...

The annual amount to be levied per person, the determination of the Collaboration members liable to contribute and an indicative list of eligible uses shall be determined by the CB at the request of the EB. The resulting decisions will be included in this appendix of the Bylaws. The organisational procedures (e.g. legal entity through which payments are made and the fee collection procedure) are set by the CB.

E Policy for formal complaints

Overview

This chapter describes the policy of the ET Collaboration for formally addressing interpersonal concerns or problems that may arise when an ET Collaboration member perceives that, in the context of ET Collaboration activities, the Code of Conduct has been breached.

Although the ET Collaboration encourages open communication between its members, in order to provide fairness and equity in the Collaboration's work environment, the ET Collaboration has established a formal Grievance Procedure that is accessible to all members and serves as the Collaboration procedure for the resolution of ET Collaboration-related complaints and grievances.

There will be no negative consequences and no retaliation tolerated for ET Collaboration members using or participating in the Collaboration problem resolution process in good faith.

The SP and the ET Collaboration Ombudspersons are available to assist the Collaboration members involved in any ET Collaboration-related problem or concern and provide free and non-binding advice on matters of policy interpretation, rights of ET Collaboration members and use of the formal grievance procedure.

Applicability

The intent of this procedure is to provide ET Collaboration members with a way to discuss and address work-related concerns or problems involving the Collaboration.

Where the conflict giving rise to the grievance is internal to an organisation and an internal grievance procedure exists, the organisation's internal grievance procedure is preferred to the ET procedure.

In particular, ET Collaboration members who believe they have been subject to discrimination in matters of employment or matters of sexual harassment should take the matter to the attention of the appropriate office of the institution where the injustice or harm has occurred. ET Collaboration members may always seek informal advice from the SP and/or the ET Collaboration Ombudspersons (see [F](#)).

Issues not addressed by this policy

This policy does not apply to grievances unrelated to ET Collaboration activities or to events that indicate the possibility of actions requiring prosecution by judicial authorities.

Where there is a question of applicability, the SP will determine whether or not an issue may be dealt with through this grievance process. If a matter is found non-grievable, the SP will inform all parties involved in a timely fashion.

Effect of grievance on ET Collaboration members

Filing a grievance will not itself jeopardize the grievant's position in the ET Collaboration. This policy forbids retaliation against any ET Collaboration member based upon the ET Collaboration member's participation in the grievance procedure.

An ET Collaboration member shall not be coerced by any other ET Collaboration member to proceed (or not to proceed) with a grievance.

Exception

Any exception to this policy requires the approval of the SP.

Records

The official records of the progress of a grievance and the established time limits are kept by the SP (or by the ET CB Chair for a grievance filed against the SP or DSP). Once the formal grievance procedure starts, dated minutes of the grievance must be taken by the contacted Ombudsperson and provided to the SP (or ET CB Chair) each time some action has taken place by the parties involved.

Time Limitations

This grievance procedure sets forth time limits for the initiation of action on each step of the procedure. Each grievance should be brought forward in a timely manner.

If a grievance is not forwarded by the ET Collaboration member within the time allowed in any step, the grievance will be considered discontinued, and no further review will take place. The SP may extend any time limit in the grievance process with the mutual agreement of the parties.

E.1 Grievance Procedure

The mutual interest of all the parties involved in a grievance is best served when there is regular, forthright communication.

An ET Collaboration member who believes that a justifiable ET Collaboration-related complaint exists should take steps to resolve the problem in a discussion with the other party whenever possible.

If this is not possible or if the issue cannot be resolved by discussion between the two parties, the complaining ET Collaboration member must contact an ET Ombudsperson, who may provide confidential non-binding advice in the informal resolution. The ET Ombudsperson will notify the SP (or the ET CB Chair for a grievance filed against the SP or DSP) of the existence of the grievance. Should informal attempts at a resolution still not be satisfactory, the ET Collaboration member may then file a formal grievance according to this Procedure. The Ombudsperson will declare the failure of the informal resolution of the issue to the ET Collaboration member and the SP (CB Chair).

During the problem-resolution process, interviews and/or meetings with ET Collaboration members and management may be conducted. No external legal representatives, such as attorneys, will be permitted to attend interviews or meetings. No tape or other recordings will be made of interviews or meetings.

Formal complaints against the SP follow the special procedure described at the end of this section.

Start of the formal grievance procedure In order to use this process, an ET Collaboration member must bring a work-related concern or problem to the attention of SP in writing within 30 working days after the failure of the informal resolution attempt.

The SP or a delegate (selected by the SP) will look into the concern or problem and make a reasonable effort to resolve the grievance within a reasonable time. The SP or delegate may appoint a committee to assist in decision-making. The SP or DSP will provide the ET Collaboration member with a written answer in due time.

If deemed necessary, the SP, the delegate, or the Committee can bring the matter to the CB, explaining the matter and proposing actions.

In the case that the SP or the delegate (possibly assisted by the committee) is convinced that no further action on the Collaboration side is reasonable/necessary, the decision becomes final. All actions needed or sanctions taken have to be approved by the Collaboration Board.

Grievance against the ET Collaboration Spokesperson or Deputy In order to file a formal grievance against the SP or DSP, an ET Collaboration member must bring the concern or problem to the attention of the CB Chair in writing within 30 calendar days of the original incident or event about which the ET Collaboration member wishes to complain or when the pertinent facts became known to the ET Collaboration member.

The ET CB Chair will inform the Ombudspersons, and together, they will look into the concern or problem and make a reasonable effort to resolve the grievance within a reasonable time. The ET CB Chair will provide the ET Collaboration member with a written answer in due time (preferably ten working days) after the matter has been brought to his or her attention.

If the ET Collaboration member is not satisfied with the CB Chair's resolution and would like additional review within ten days of receiving the ET CB Chair's response, the ET Collaboration member must submit a written appeal to the ET CB Chair. Within ten working days of receipt of the written complaint, the Chair of the ET CB, in consultation with the EB (excluding the Sp and DSP), shall arrange a meeting with the ET Collaboration member, the SP, the DSP and any other persons the Chair of the ET CB deems helpful to investigate and resolve the issue. The meeting will be closed. If possible, the ET CB Chair will resolve the problem at this meeting. If a resolution is not possible, the ET CB Chair will have ten working days in which to make a final decision in consultation with the EB (minus the SP and DSP). The decision will be promptly communicated in writing by the ET CB Chair to the ET Collaboration member and to the SP.

Upon completion of this process, the ET CB Chair will forward a copy of the grievance and answer to the EB.

F ET Collaboration Ombudsperson

The ET Collaboration will have two Ombudspersons, preferably of different genders, in an attempt to keep the threshold for contacting them as low as possible, especially in the case of gender-related conflicts. The ET Collaboration Ombudspersons provide confidential, *informal*, independent, and neutral dispute resolution advisory services for all members of the ET Collaboration. The Ombudspersons assist all members in identifying and evaluating options for resolving and managing conflicts, provide various types of informal mediation services, and make referrals to other appropriate academic and community resources. The ET Collaboration Ombudspersons are meant to help with conflicts that arise in ET Collaboration working groups or events, not in problems internal to an academic institution, which usually can be mediated by the appropriate offices in the host institution.

The Ombudspersons are familiar with the organizational structure of the ET Collaboration and can provide current information about services, programs, policies, and procedures. Due to its informal, confidential, and independent role outside the administrative structure of the Collaboration, notice to the Ombudspersons about a problem does not result in the generation of records, nor does it constitute legal notice to the member host institution about the existence of a problem. For those interested in making official complaints to the university about a problem, the Ombudspersons can assist by making appropriate referrals.

The ET Collaboration Ombudspersons report only to the SP, but they do not share any confidential information. The ET Collaboration Ombudspersons may be members of the ET Collaboration, but they should not have any other leadership or supervisory role that may compromise the Ombudspersons' impartiality.

The ET Collaboration adopts the role definitions from the International Ombuds Association copied below from <http://www.ombudsassociation.org/resources/what-ombuds>:

The Organizational Ombudsperson—Role and Function

The primary duties of an organizational Ombudsperson are (1) to work with individuals and groups in an organization to explore and assist them in determining options to help resolve conflicts, problematic issues or concerns and (2) to bring systemic concerns to the attention of the organization for resolution.

An organizational Ombudsperson operates in a manner to preserve the confidentiality of those seeking services, maintains a neutral/impartial position with respect to the concerns raised, works at an informal level of the organizational system, and is independent of formal organizational structures. Successfully fulfilling that primary function in a manner consistent with the IOA Standards of Practice requires a number of activities on the part of the Ombudsperson while precluding others.

Activities and functions most frequently undertaken by an Ombudsperson include, but are not limited to:

- Listens and understands issues while remaining neutral with respect to the facts. The Ombudsperson does not listen to judge or to decide who is right or wrong. The Ombudsperson listens to understand the issue from the perspective of the individual. This is a critical step in developing options for resolution.
- Assists in reframing issues and developing and helping individuals evaluate options. This helps individuals identify the interests of various parties to the issues and helps focus efforts on potential options to meet those interests.
- Guides or coaches individuals to deal directly with other parties, including the use of formal resolution resources of the organization. An Ombudsperson often seeks to help individuals improve their skill and their confidence in giving voice to their concerns directly.
- Refers individuals to appropriate resolution resources. An Ombudsperson may refer individuals to one or more formal organizational resources that can potentially resolve the issue.
- Assists in surfacing issues to formal resolution channels. When an individual is unable or unwilling to surface a concern directly, the Ombudsperson can assist by helping give voice to the concerns and /or creating an awareness of the issue among appropriate decision-makers in the organization.
- Facilitates informal resolution processes. An Ombudsperson may help to resolve issues between parties through various types of informal mediation. Identifies new issues and opportunities for systemic change for the organization.
- The unique positioning of the Ombudsperson serves to provide unfiltered information that can produce insight into issues and resolutions. The Ombudsperson is a source of detection and early warning of new issues, and a source of suggestions for systemic change to improve existing processes.

What an Ombudsperson does not do:

Because of the informal, neutral, confidential and independent positioning of an Ombudsperson in an organization, they typically do not undertake the following roles or activities:

- Participate in formal investigations or play any role in a formal issue resolution process
- Serve in any other organizational role that would compromise the neutrality of the Ombudsperson role
- Receive notice for the organization
- Make binding decisions or mandate policies
- Create or maintain records or reports for the organization