

ORGANIZATION of the DUNE COMPUTING CONSORTIUM

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1. Role of the Consortium

The Computing Consortium is responsible for developing a computing model and for assigning a division of institutional responsibilities for computing resources, deliverables and operations amongst the participating institutions. It is a joint consortium for the single-phase and dual-phase designs, and the near detector.

Each consortium takes responsibility for the delivery of a specific detector sub-system, in this case computing resources. The consortia operate within the rules agreed by the DUNE collaboration as defined in dune-doc-2145. They are summarized below:

- Each consortium will form a **Consortium Board (CB)** with one representative from each participating institution. The CBs will manage the internal organization of the consortium.
- The consortium will have an overall **Consortium Leader**. The Consortium Leader is responsible for the sub-system deliverables and represents the consortium to the overall DUNE collaboration.
- The consortium will have **Technical Leads** to act as the overall project manager for the consortium. The **Technical Leads** report to the overall Consortium Leader.
- Computing will have a Host Laboratory **Technical Project Lead** and an **External Technical Project Lead**, responsible for coordination with the DUNE Project, host lab and with DUNE institutions.
- The consortium is responsible for assigning a provisional division of institutional
- responsibilities for computing resources, deliverables and operations, amongst the participating institutions. This division of responsibilities must account for the resources that are likely to be available. The internally agreed division of responsibilities needs to be presented to the Technical Board, which will then make a recommendation to the collaboration management for approval.

2. Consortium Roles and Structure

Consortium Lead

- Overall responsibility for the sub-system deliverables;
- Represents the consortium to the overall DUNE collaboration, agencies and to the broader HEP community;
- Interfaces with Physics groups to assure the consortium is achieving the collaboration's physics goals;
- Works with consortium members and funding agencies to secure and document resources;
- Works with Technical Leads and External Leads and Consortium members to develop and prioritize computing projects.

Host Technical Lead and External Technical Lead

The technical leads are responsible for computing at on-site and at remote computing facilities. As the leads play an important role in interfacing with institutions and computing resources worldwide, at least one of the leads should be external to the host laboratory. The other one should be able to spend a significant amount of time at the host lab. The exact distribution of responsibility is left to the leads.

- Represent the project on the DUNE collaboration Technical Board;
- Helps specify interfaces with other DUNE consortia;
- Serve as liaison to organizations such as WLCG;
- Coordinates annual FNAL SCPMT resource request;
- Helps guide technical decisions by the consortium board;
- Works with US and non-US partners on integration of international efforts
- Develops common projects with other medium-range HEP/astro experiments.
- Coordinates project management for subgroups;

Software Architect

Evaluates and integrates software frameworks and components

Interfaces core software with algorithms, databases ...

Evaluates and implements software development tools

Leads the Core Software group

Subgroups and roles

each subgroup will have one or two co-leaders. Some of these roles carry over from the previous Computing organization while others are new to the Consortium.

- Collaborative Tools
- Data Management
- Databases
- Production and Processing
- Workflow Management
- Data Quality Management
- Software Release Management
- Software Architect and Core Software
- Advanced Architectures
- Algorithm liaisons
- Networking
- TDR/CDR documents

Technical advisory board

The Consortium Lead, in collaboration with the Consortium, will convene Technical Advisory Boards as needed. A Board will be convened when there is a particular technical issue to address and will be given a charge appropriate to the issue at hand, such as reviewing and recommending solutions to a technical issue. Boards will include the 3 Consortium leads, the Software Architect, relevant subgroup representatives and technical experts chosen appropriately to address the charge. The outcome of a Board will typically be an advisory report delivered to Consortium leadership, the report being public within the Collaboration.

Resource Board

The Resource Board is responsible for resource negotiations with national funding agencies and contributing laboratories and for monitoring and reporting on collaboration contributions of hardware resources and personnel to the consortium. The Resource Board will consist of a resource board chair, the consortium leadership and liaisons to national funding agencies and major contributing laboratories.

3. Joining a Consortium

For an institution to join a consortium the Institutional Board representative should email the DUNE Technical Coordinator (jameseb@fnal.gov) clearly stating:

- who will be the prime contact person at the institution for this consortium (who may or may not be the IB rep.) who will act as the institutional representative on the Computing Consortium Board;
- which of the listed deliverables or subgroup projects the institution is interested in contributing to;
- potential sources of future funding for computing activities (e.g. Project/Funding Agency support, University base grant, etc.). At this stage, there will be few definitive answers regarding funding, but we wish to build up an initial understanding of how the various contributions could be resourced. Finally, it is worth stating that not every institution will be part of the computing consortium.

4. Election of the Consortium Leaders

The Consortium Leader roles will be important positions within the DUNE collaboration - they will be responsible for the successful delivery of the computing resources needed for full exploitation of data from DUNE. As such, the consortium leaders need to be approved by the collaboration management.

The election of the initial consortium leaders will be managed by the DUNE Co-Spokespersons:

- the Co-Spokespersons will contact each of nominated candidates to see if they are willing/able to take on this role;
- the Co-Spokespersons will also consult with the Consortium Board representatives to establish a list of potential candidates with broad support within the Consortium;
- if more than one candidate emerges from this process, the Consortium Leader will be elected by the Consortium Board members (one vote for each institute). If there are three or more candidates with broad support, the election will use the preferential voting system
- if there is only one candidate with broad support, that person will be put forward for approval (simple majority) by the Consortium Board members.

Roles within the Computing Consortium will have initial 2-year appointments with reappointment possible by mutual agreement by the Consortium Leads or, for the Lead roles, the Collaboration Spokespersons.