

Integrated Project Delivery Centre

Terms of Reference for:

Project Feasibility Committee & Resource Allocation Committee

Purpose & Scope

The Integrated Project Delivery Centre (IPDC) provides the community with the highly skilled engineering and technical resources required in the design, fabrication, and assembly of the major international experiments that will be undertaken during the next decade. The IPDC is distributed strategically across Canada in several hubs to best suit the needs of the community. The Centre is managed by a lead engineer, following the guidance of a pan-Canadian prioritization board (the Resource Allocation Committee (RAC)) that reviews the demands on the resources on a regular basis to ensure the projects are getting appropriate, sufficient, and dedicated resources at the time that they need it. The RAC is supported by a Project Feasibility Committee who provide an engineering opinion on the feasibility of the request from an engineering and resource perspective. The IPDC Manager assesses progress on projects, looking at how projects are developing compared to when the resource was awarded, and how the allocation may need to be adjusted in response.

These Terms of Reference cover the composition and role of both the Project Feasibility Committee and the Resource Allocation Committee in terms of providing advice to the McDonald Institute management on the allocation of IPDC resources. The application process is described in a separate document, the "IPDC Application Process" which is attached as an appendix to these terms of reference.

Project Feasibility Committee (PFC) Terms of Reference

Composition:

- The PFC consists of a standing committee of three IPDC Technical Staff (typically the IPDC Manager and two other Technical Staff covering a range of engineering or technical expertise). The membership is approved by the Scientific Director of the McDonald Institute.
- When needed, additional members with appropriate expertise and familiar with the technical requirements of the application may be invited to join the PFC by the IPDC manager. These members could include other engineers, IPDC Technical Staff or other delegates.

Role:

Meet as needed to:

- Review Project Applications for completeness and solicit more information from the Project Applicant, if needed.
- Create/contribute to Project Tickets.
- Consult with the Scientific Director or Associate Scientific Director as needed, to verify that a Project Application is aligned with the McDonald Institute research strategy. Project Applications that are not well-aligned may be returned to the Applicant for discussion, or, if appropriate, declined.
- If required, prepare an engineering opinion on the feasibility of requests (Feasibility Assessment) and submit this to the Resource Allocation Committee (RAC). Details on the suggested content for this Assessment are addressed below.
- If requested, work with a Project Applicant to perform a reassessment of the project.

Feasibility Assessment:

Not all applications have a scope and complexity that leads to a Feasibility Assessment. When it is required, the Feasibility Assessment must consider:

- Technical – Can the IPDC provide a technical solution for the request? Will outside engineering resources be required to support this request?
- Personnel – Who on the team have the technical skills to support the request? What FTE loading is needed? What oversight is required and who will provide it?
- Budget – Is funding secured for the request? Is the budget for materials/equipment realistic? Are there significant ancillary costs that must be covered by the IPDC?
- Schedule – Is the timeline provided by the applicant realistic? Assuming no interference with other activities, could the IPDC provide the deliverables on the requested timeline?
- Risk – Are there high-risk items to consider? For example:
 - Regulatory, legal, or IP implications
 - Unique technical challenges, novel or immature technologies
 - Funding not secured
 - Hard deadlines

Conflict of Interest:

It is expected that the Project Feasibility Committee is generally tasked with providing a professional engineering/technical opinion and is not directing or assigning any of the work. As such they are not managing the work at this stage and should not be in conflict of interest. If a member of the committee finds themselves in conflict of interest, then they shall declare this to the Scientific Director, and if deemed necessary they will recuse themselves from the committee and a delegate will be invited to serve on the committee in their stead.

An actual, potential, or apparent conflict of Interest arises when a member's private interests (financial, family) could improperly influence their professional decision-making activities.

Resource Allocation Committee (RAC) Terms of Reference

Composition:

The RAC will consist of physicists (Faculty or Research Scientists) from partner institutions of the McDonald Institute. This will include:

- The Scientific Director, representing the McDonald Institute.
- One member representing each of the hub locations (TRIUMF, Simon Fraser University, University of Victoria, University of Alberta, Queen's University, Carleton University, McGill University, and the Université de Montréal).
- Each Hub will be invited by the Scientific Director to participate, keeping in mind that it would be useful to have some participation by the broader sub-atomic physics community with overlap on other MRS prioritization committees. Balancing these needs, the final membership will be approved by the Scientific Director.
- The IPDC Manager, who will be a non-voting member of the committee
- The IPDC Project Officer will be a non-voting member of the committee.
- The committee will select a chair from the voting members.

Role:

- Receive and review Feasibility Assessments from the PFC for Project Applications.
- Evaluate the scientific merit of the application and determine whether a project will be supported or not. In forming an opinion, the committee will consider the scientific priority (in the context the McDonald Institute scientific strategic plan, as well as the SAP long range plan), the likelihood for success (reasonable path forward to funding the full project and sufficient experience and personnel within the collaboration to be successful), and the potential scientific impact. The RAC (via the Project Officer) may request input from the applicant outlining the level of support and commitment from NSERC, CFI, other agencies, or host laboratories to help understand the current positioning of the project.
- Capture records of RAC recommendations and their justifications.
- The RAC will maintain a regular meeting schedule, initially meeting three times per year to consider requests and to monitor progress on the existing allocations, and will also meet as needed to consider more urgent or unexpected situations.
- On an annual basis, receive and consider requests for changes to the IPDC program and budget.
- Final recommendations must be submitted by the RAC to MI Senior Leadership for consideration.

Conflict of Interest:

- Given the scale and complexity of most astroparticle physics experiments, it is to be expected that there will be members of the committee participating in the projects being assessed. If a member of the committee finds themselves in conflict of interest, then they shall declare this to the committee. In most cases being aware of the COI will be enough but if deemed necessary by the committee (opinion solicited by the chair) they will recuse themselves from voting on applications in which they are in conflict. This may include applications in contention with their own application.
- An actual, potential, or apparent conflict of Interest arises when a member's private interests (financial, family) could improperly influence their professional decision-making activities.

Revision History

Rev C - This a living document and may be revised over time as the program matures. We recommend checking the website periodically for the latest updates

Appendix

Application Process

Purpose & Scope

The Integrated Project Delivery Centre (IPDC) provides the community with the highly skilled engineering and technical resources required in the design, fabrication, and assembly of the major international experiments that will be undertaken during the next decade. The IPDC is distributed strategically across Canada in several hubs to best suit the needs of the community. The Centre is managed by a lead engineer, following the guidance of a pan-Canadian prioritization board (the Resource Allocation Committee (RAC)) that reviews the demands on the resources on a regular basis to ensure the projects are getting appropriate, sufficient, and dedicated resources at the time that they need it. The RAC is supported by a Project Feasibility Committee who provides an engineering opinion on the feasibility of the request from an engineering and resource perspective.

This document defines the procedures to be used by members of the community, working with the IPDC Project Officer and the Project Feasibility Committee and the Resource Allocation Committee, to apply for engineering and technical resources in support of their projects.

Application & Project Lifecycle

Phase 1A: Submit Project Application.

- Project Applicant submits an Application.
 - Using the [web form](#), answer the prompts needed to populate a Project Ticket. All Level 2 or higher Requests must be formally submitted by the Project Applicant through the website.
 - Level 0 and 1 Requests may be optionally submitted informally (e.g., verbal discussion, informal email/Slack/Teams) to IPDC Technical Staff.
- The Application must cover:
 - Applicant name, institution, contact info, and date of submission
 - Title (short description of request)
 - Basic technical requirements and deliverables
 - Personnel - Estimated FTE requirements, specialties, proposal for oversight for work (who will supervise and approve work)
 - Preliminary budget
 - While the engineering services provided to the astroparticle physics community are free, the Applicant should include an anticipated budget that would include Applicant costs for materials/equipment, and ancillary costs that the IPDC may be requested to incur to support the work (e.g., this might include specialized

- training, software, or tools). This information will help the IPDC assess the feasibility of delivering the project within the available or expected funding.
 - The Applicant must declare the status and source of funding for the project, noting that the IPDC will still consider requests from unfunded projects.
 - Whether this is a quid pro quo request from SAP outside of astroparticle physics for consideration.
 - Preliminary schedule
 - Risk - Are there high-risk items to consider? For example:
 - Regulatory, legal, or IP implications
 - Unique technical challenges, novel or immature technologies
 - Funding not secured
 - Hard deadlines

Phase 1B: Initiate a Project Ticket.

- The IPDC PFC and IPDC Project Officer will conduct an initial screening of incoming Tickets and may follow up with the Applicant or Ticket initiator. IPDC will acknowledge receipt of new Applications and begin the process within two weeks of submission.
- The Ticket will be developed as the project is assessed and moves through its lifecycle phases 2-5, described below. At onset, the Ticket will include the details from the Application, as described above.

Phase 2: Determine Request Level and review thresholds.

- Authorization to allocate resources for a Project Application is based on the thresholds below.
 - All projects (with the exception of approved quid pro quo arrangements with other SAP MRS awards) must be aligned with the McDonald Institute research goals.
 - Level 0 Requests are reasonable requests in support of the priorities set by the Principal Investigator hosting IPDC Technical Staff at their local institution. Except under special circumstances agreed upon by the IPDC Manager, each 1.0 FTE IPDC Technical Staff should allocate no more than 0.2 FTE combined across all LO Requests, averaged monthly.
 - Level 1 Requests are reasonable and small requests from community members that can be accepted and completed by the individual receiving the request if they believe it can be reasonably accommodated within the indicated timeline from the threshold table below. Except under special circumstances agreed upon by the IPDC Manager, each 1.0 FTE IPDC Technical Staff should allocate no more than 0.1 FTE combined across all L1 Requests, averaged monthly.
 - All Level 2 or higher Requests must be forwarded to the IPDC PFC for consideration.
 - The IPDC Manager has the authority to approve Level 2 Requests and assign resources.
 - Level 3+ Requests must be reviewed and recommended by the RAC.
- Tasks, small, medium, and large – Technical Staff working on tasks bring a specialized set of skills (e.g., pressure equipment design, gas panel design, installation fixture engineering, cryogenics, electronics, machining, fabrication) and will complete these tasks with clearly defined scope on an as-need basis for the experiments.

- Project Engineer – Project Engineers get wholly integrated into the experiment. Tasks for Project Engineers are typically directed by managers or PIs representing experiments. Typically, Project Engineers will remain in one experiment for >1 year and may have additional assigned responsibilities within the organizational structure of the experiment.

Level	Type	FTE (per 1.0 FTE)	Timeline	Authorization
0	Local institution support	<0.2 total	--	Discretion of hosting PI at the local institution
1	Task, Small, ad-hoc	<0.1 total	1-2 person-days/month	Discretion of individual receiving request
2	Task, small-medium	<0.2 each	Person-week over a few months	PFC review + IPDC Manager approval
3	Task, medium	0.2+ each	<1 year	PFC review + RAC recommendation
4	Task, large		1 year +	
5	Project Engineer		1 year +	

Phase 3A: Complete Feasibility Assessment.

- A Feasibility Assessment is prepared. The responsibility for the assessment depends on the Request Level:
 - Level 0, 1 – Completed by the individual receiving the request
 - Level 2 – Completed by the Project Feasibility Committee (PFC)
 - Level 3+ – Completed by the PFC, then submitted to the Resource Allocation Committee (RAC) for review.
- The Assessment must consider the elements outlined in the terms of reference for the Project Feasibility Committee.

Phase 3B: Resource Allocation Committee reviews Level 3+ applications and recommends allocations of resources.

- For Level 3+ Requests, the RAC and IPDC Manager will meet to discuss and recommend prioritizations and resource allocations.
- Prioritization of open tickets will be done considering multiple factors as indicated in the Resource Allocation Committee Terms of Reference.

Phase 3C: Communicate decision to Applicant.

- Approved projects and details of any deviations from the initial request will be communicated to the Project Applicant by the IPDC Project Officer.
- Declined projects and the reasoning will be communicated to the Project Applicant by the IPDC Project Officer.

Phase 4A: Commence work.

- The IPDC Manager, following approval by the Scientific Director, will assign Technical Staff to Projects.

- The Project Applicant and assigned Technical Staff will jointly finalize the Design/Project Scope Specifications (DSS/PSS), covering the scope of work, deliverables, budget constraints, schedule, oversight, and QA/QC requirements.
- The IPDC Manager will approve the DSS/PSS and work may commence.

Phase 4B: Review progress and reassess priorities.

- The Project Applicant may request changes to the DSS/PSS at any time. Significant changes in scope may trigger a review of some steps of the Application Process.
- Working with the Project Officer and involved Technical Staff, the IPDC Manager will monitor project progress and meet with the PFC as needed to review progress and/or reassess feasibility.
- The RAC will review progress and reassess priorities at each meeting of the Committee.
- Any changes to project priorities or resource allocations will be communicated to the Project Applicant.

Phase 5: Close out completed or discontinued projects.

- The Project Ticket will be officially closed out by the IPDC Project Officer.
- The Project Applicant will be invited to participate in a satisfaction interview/survey.

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