

Section A) Executive Summary

This proposal is for the creation of a new organization to coordinate funding and strategic directions for national activities related to Advanced Research Computing (ARC), Data Management (DM), and Research Software (RS). Building on the stakeholder-led consultation process of the past 4 years, it will establish a central hub for planning, coordination, integration, and collaboration across these components, and ensure decisions are driven by the national interest, leading to a more predictable and cost effective DRI ecosystem in an environment of rapidly changing technology and researcher needs.

It will facilitate and support an environment of integrated DRI services for researchers through collaboration with CANARIE, other national DRI organizations, and regional/provincial/local delivery layers. It will ensure that its funding strategy meets the principles of the DRI contribution program and that investments are safeguarded through the retention of highly qualified personnel (HQP) and strengthened cyber security.

Working closely with current service providers, including national host sites, national DM service organizations, regional ARC- and DM-serving organizations and the Compute Canada Federation (in place until the end of CFI MSI 2 funding), a key focus of the new organization will be to ensure minimal disruption to researchers as infrastructure and services are integrated into its activities.

Ensuring a seamless DRI ecosystem that is researcher-focused, accountable, agile, strategic, sustainable and rooted in a shared vision will address past fragmentation challenges and will result in a vibrant DRI ecosystem that enables researchers to access the digital research services they need.

Section B) Implementation

Activities in the first 2 years will focus on incorporating the new organization and undertaking strategic and operational planning in relation to ARC, DM, RS, cyber security, and the retention of HQP (as defined in the Contribution Program Guide). Engagement across stakeholder communities, representing a diversity of research areas, will be a key success factor for the planning process, allowing the new organization to deliver on a shared vision and establish the relationships needed to realize its mission and goals.

The new organization will engage with CANARIE, other national organizations, and regional/local delivery layers to ensure that its programs and services are optimized, meet the needs of researchers, and support the objectives of the DRI strategy. Strategic and regular communication with the DRI and research communities will be an important activity of the organization.

As the new organization evolves and matures, ensuring the continued availability and evolution of national DRI services, infrastructure oversight and funding, and the retention of HQP across the country will be a priority. A phased and collaborative approach will be

required to build and execute a plan that is appropriate for, and cognizant of, the needs of all stakeholders.

Implementation Goals* for the first two years include:

- Establish a culture of service and community engagement.
- Implement the required processes to ensure researcher priority needs inform the strategic plan and activities of the organization.
- Establish processes to ensure integration and alignment across DRI components and national, provincial/regional, and local delivery layers.
- Minimize impact on researchers and ensure the retention of HQP across the country as the new organization is established and services are transitioned.

** The goals have been articulated in the absence of an established organization. Changes may be required once the organization is incorporated and operationalized.*

Implementation activities for the first 2 years include:

1. ***Incorporation of the organization as a not-for-profit corporation.*** An applicant board will undertake the incorporation activities, including additional consultations to confirm a number of details required to finalize the organization's governance structure and establish the inaugural board (e.g. definition of members, the processes for becoming a member, composition of inaugural Board, process to select Board members, etc.). The inaugural board will then assume responsibility for the recruitment of a CEO through a competitive and transparent process. The new CEO will develop the organizational structure and staffing plan.
2. ***A work plan for the first 2 years,*** articulating the organization's initial priorities, will be developed, implemented, and modified as required as the organization evolves through this initial phase.
3. ***A strategic planning process*** will be launched to develop a 5 year strategic plan for the organization. This plan will be built through broad stakeholder engagement and include the articulation of the organization's vision, mission, high level science goals, and objectives for ARC, DM, and RS across the national layer of the DRI ecosystem. It will also address key challenges that cut across the DRI landscape, including support for HQP and strengthening cyber security; optimization of programs and services with CANARIE and provincial/regional and local delivery layers; provide strategic direction on collaboration and coordination with other layers of the DRI ecosystem, and set expectations for organizational culture. It is important to note that, as the new organization grows and matures, the strategic plan will also evolve, especially in the early years. It is anticipated that the priorities will start to stabilize in year 3.

A researcher priority "needs assessment" process will be a critical first step in the strategic planning process and essential to informing the organization's strategic directions and operational work plan. The approach taken must engage researchers across disciplines to identify and validate current and future priorities for the national

layer of ARC, DM, RS, and cyber security. It will also benchmark against other jurisdictions, as possible.

4. ***A plan to transition existing national layer infrastructure and services and to retain the talent (HQP) across the country*** will begin to be developed. The organization will work collaboratively with existing national service providers and organizations, including national host sites and ARC- and DM-serving regional organizations, to understand and articulate the requirements for the successful retention of talent (HQP) across the country and integration of services. It will also work across the three delivery layers to ensure strong coordination.
5. ***An operational planning process*** to establish the organization's work plan for years 3 to 5 will be developed. Guided by the strategic plan, the plan will articulate and prioritize key organizational activities based on considerations such as importance of activity, risk, timing, and ease of delivery. A set of initial performance indicators to measure DRI program and service impact on and benefit to Canadian researchers will also be developed.
6. ***An investment framework*** will be developed as a component of the strategic and operational work plans. It will be informed by the researcher priority needs assessment process and the strategic priorities. It will identify key areas for strategic investment within the existing funding envelope provided by the federal government and through contributions available from provincial/territorial, institutional, and other funders.
7. ***Key national infrastructure and services will begin to be integrated*** based on the transition plan. This work will continue to be done in close collaboration with existing national service providers and organizations, including national host sites and ARC- and DM-serving regional organizations. The successful retention of HQP and services to researchers will be a critical component of this process.
8. ***Performance measures*** will be established. As the organization develops, it will need to articulate outcome and efficiency measures that are aligned with its strategic goals.

Previously identified challenges will be addressed through a broad-based strategic planning process that cuts across and between ARC, DM and RS. It will work to optimize and deliver seamless and interoperable DRI services for researchers through the integration of services across all components of the DRI ecosystem and by engaging with CANARIE, as well as other national DRI service providers and provincial/regional/local delivery layers, which are all key partners in meeting this objective.

Section C) Collaboration and Engagement

Collaboration and engagement with researchers, DRI partners and stakeholders across all layers of the DRI ecosystem will be central to the organization's success. To that end,

a culture of service to researchers and engagement with the DRI community will be embedded in the organization and operationalized through 2 key mechanisms: a User Council and advisory/ad hoc working groups. These 2 mechanisms, which are described below, will be used to support strategic and operational planning, as well as inform ongoing operations. They will also be used to support the planned implementation activities as outlined previously, including the researcher priority needs engagement process.

User Council

A User Council composed of researchers will be established to provide strategic advice to the Board on matters related to the delivery of infrastructure and services. This Council will be essential to establishing a culture of service to, and engagement with, researchers by providing an influential body that is embedded directly within the governance structure of the organization. The User Council will be responsible for working with discipline-specific communities and ensuring that the perspectives of researchers from across all disciplines is reflected in their advice. The User Council will also work with the staff of the organization to ensure that the Council's advice to the Board aligns with the vision, mission, and goals of the organization and with its funding and operational parameters.

Advisory Committees and Ad Hoc Working Groups

Advisory Committees will be established at the operational level for each of the key DRI components - ARC, DM, and RS - as well as cyber security. They will be composed of issue experts, representatives from across the three delivery layers of the DRI ecosystem, including ARC- and DM-serving regional organizations, and international advisors, as needed. They will provide advice to the staff of the organization on the delivery of services, including training of HQP. They may also play a role in strategic and operational planning, as well as foresight planning. These advisory committees will be essential to the integration and coordination of infrastructure and services across the DRI ecosystem.

Other ad hoc, operational working groups could be established to provide advice on specific service or cross-pillar issues or as new issues emerge.

Key Stakeholders

The organization will need to collaborate and engage with a broad list of key stakeholders from across and within the three delivery layers - local, provincial/regional, and national - of the DRI ecosystem. This engagement will need to take a variety of forms and include stakeholders such as the appropriate offices within academic research institutions and research hospitals (e.g., research, library and IT); regional ARC-serving organizations and regional and provincial library organizations, as well as various national associations representing, among others, colleges, institutes, cégeps and polytechnics, graduate students, ethics boards, IT, funding agencies, and specific research disciplines. The organization will also need to consider the most appropriate way of engaging Indigenous communities and industry.

Section D) Governance and Management

D1. Governance

This section provides the broad principles and framework upon which the final governance model will be built, pending further discussions with the community.

As part of the consultations undertaken for this proposal, researchers and stakeholders supported an open model of governance with different levels of membership and shared the view that researchers must be represented strongly in the governance of the organization. Additional details related to the proposed governance and membership model are provided below.

Board Competencies

The Board will need seasoned Directors with the right mix of skills and experience, including a deep knowledge of the community that the organization serves and expertise in the effective and efficient functioning of a nonprofit organization. The Board should also have competencies in the following broad areas: Canada's research environment; Board governance and oversight; strategic planning; service-based environments; business and risk management; security and privacy; and an ability to drive strategy to execution. A more detailed Board skills and competency matrix will be developed as part of the next steps toward incorporation of the new organization.

Board Composition

Given the scope of the new organization's mandate across 3 DRI components and its need to coordinate across a highly diverse stakeholder environment and national, provincial/regional, and local delivery layers, it will be critical that the composition of the Board reflects not only the broad competencies described above, but also the diversity of Canada's research community.

The inaugural Board for the new organization will be a maximum of 15 directors with its composition reflecting the diversity of the membership and the communities it serves. A critical component of the Board will be researcher representation with at least 2 members of the User Council (see below) appointed as Directors to ensure a strong researcher voice on the Board and to reinforce the importance of the relationship between the Board and the User Council.

The Board composition must also enable it to benefit from expertise external to the university/DRI community. Subject to further consultation with the community, it is suggested that at least 25% of the Board should include independent Directors.

The Board may also consider leveraging additional independent expertise by appointing national and international experts to its committees as advisors or observers.

Committees

In addition to key governance committees such as a Finance/Audit, Governance, Nominations, etc., there is support for two additional committees related to the Board: a User Council and an Investment Committee.

User Council

A User Council composed of researchers representing a diversity of research areas will be established to provide advice and recommendations to the Board on matters related to the services provided by the organization to researchers. The User Council would work closely with staff to ensure that any recommendations from the User Council are viable (financially, technically, operationally, etc.) and reflect the needs of the broad research community. The members of the User Council (i.e. researchers) would be nominated and elected by the voting members (the definition of which will be finalized in the incorporation phase).

Investment Committee

Funding from the federal government will be governed by a funding (i.e. contribution) agreement between the new organization and the federal government. An Investment Committee of the Board could be established. Based on analysis and advice developed by staff, this Committee would make recommendations to the full Board for the allocation of funding toward the various components of the ecosystem for which the new organization is responsible.

Diversity, Equity and Inclusion

Diversity will be considered in all aspects of the organization, including but not limited to the composition of the Board, internal and external committees, and selection of candidates for leadership positions. The new organization will also need to ensure the Board represents the breadth and depth of its stakeholder community. The organization commits to achieving a gender and geographically diverse, equitable, accessible, and inclusive environment and will develop and implement policies that actively cultivate an institutional culture that values, supports, and promotes equity, human rights, respect, and accountability among all who work for or interact with the organization. Further, the organization will encourage and support individual and collaborative efforts to identify and address inequities, and will welcome and enable contributions of all voices as we engage with diverse ideas, knowledge, and perspectives in the pursuit of inclusive excellence for the public good.

Conflict of Interest

The Board will ensure that appropriate conflict of interest and code of conduct policies are in place. These policies will be based on best practices in governance that require

those undertaking activities on behalf of the organization to do so in a way that avoids any real or perceived conflicts of interests and will include the process(es) required to ensure that the nature of any declared conflicts are known and the appropriate action is taken.

Improvement of the Status Quo

Currently, responsibility for delivering Canada's DRI ecosystem is highly distributed, involving many actors across multiple delivery layers with no formal structures or mechanisms to ensure overall coordination or integration of planning and services.

Having a national organization that provides critical strategic and operational leadership across the 3 DRI components, and is positioned to collaborate with CANARIE and other national, regional/provincial and local providers will improve the overall capacity of the DRI ecosystem to plan and deliver the infrastructure and services required by researchers.

Specifically it will:

- help to ensure that all researchers across Canada have knowledge of, and ability to access, DRI services and platforms, regardless of their discipline, geographical location, or the size of their institution;
- enable collaborative and efficient development of the services and supporting policies, standards, protocols, processes, and procedures essential to supporting researchers in their work;
- build a collaborative culture that engages researchers and research administrators across Canada, creating awareness of and support for research best practices and facilitating access to and adoption of DRI;
- ensure that DRI tools and platforms, such as data repositories, archival storage, research software and ARC services are interoperable across Canada and internationally, facilitating reuse, access, and sharing, rather than creating barriers and siloes;
- ensure appropriate practices (e.g. peer reviewed, assessment of scientific merit, etc.) are employed to ensure appropriate allocation of resources;
- facilitate consistency of practice and approach to ARC, DM, and RS services across Canada by supporting strong communities of practice, access to networks of experts, and shared training, all of which support the development of HQP; and,
- Leverage expertise and shared investment across research organizations, government, and other funders, increasing quality, impact, and financial efficiency.

D2. Leadership and management capabilities

Steering Group

The three signatories are members of a small Steering Group brought together to lead the development of this proposal based on the following guiding principles:

- to bring forward a proposal built on the previous efforts by the community; and,
- to ensure the process allowed for additional input and comment from the community as it was being developed.

This group will remain in place during the evaluation process to:

- respond to any questions from and attend any required meetings with ISED;
- continue to respond to questions from and keep the community informed of the process;
- ensure an Applicant Board is in place to incorporate the required not-for-profit corporation; and,
- assist the Applicant Board in executing the required initial implementation activities.

Applicant Board

The Applicant Board will consist of a small number of individuals (likely 3-4) with the appropriate background and skills to:

- engage in consultation with the community on the details left undetermined in the proposal and required to finalize the creation of the new organization (e.g. definition of membership);
- undertake the legal steps to incorporate the new not-for-profit corporation;
- ensure appropriate communications with the community as the new organization takes shape;
- enact processes to put in place the full inaugural board; and
- engage in initial contribution agreement discussions with ISED.

The Applicant Board will engage expertise in key areas, such as legal, communications, and project management, as needed and will be informed by an advisory group of functional area experts (i.e. ARC, DM and RS) and researchers. The Applicant Board and advisory group will represent the geographic and research diversity of Canada.

Leadership and Management Capabilities

The executive functions of the new organization will be undertaken by a President and Chief Executive Officer (CEO) with direction from the Board. Staff will be responsible for strategic and operational planning; policy development and research; oversight of all operations related to the delivery of national DRI infrastructure and services for advanced research computing, data management and research software; community engagement; communications; financial management and reporting; procurement; and other functions as may be appropriate.

To ensure that the organization is set-up for success in serving Canada's research community, the senior team will require a strong culture of service to, and engagement

with, researchers. The integration and alignment of infrastructure and services across the 3 components (ARC, DM, RS), with the Network as well as across all 3 service delivery layers will also need to be a central focus of the senior team. To accomplish these tasks, they will need to work closely with CANARIE, regional/provincial organizations, and institutions.

To support the work of the staff of the organization, advisory and ad hoc groups will be formed as necessary to leverage expertise from relevant stakeholders in the community and internationally, such as advisory groups on ARC, DM, and RS.

D3. Membership Model

Community response to the proposed governance model indicated general agreement on a two category/level membership model where;

- voting members would likely be academic research institutions, possibly defined as institutions eligible to receive tri-agency funding; and
- non-voting members would likely be other key DRI ecosystem stakeholders.

There is also a desire amongst the community to:

- enable DRI ecosystem stakeholders to have an ability to participate in the organization, such as attending the AGM.
- ensure the definition of voting members respects representation of all components (ARC, DM, RS) and
- ensure the model reflects the diversity of breadth of research disciplines, size of institutions, and geographical diversity.

The two-level membership model enables this diversity while ensuring equitable voting principles.

Services provided by the new organization will be available to researchers from member and non-member institutions alike.

Given its central importance to the new organization, further consultation on the membership model and the issue of membership fees is required with the community.

Appendix A: A 2 Year Critical Path for the New DRI Organization

The timeline is based on fiscal years as follows:

- Year 1 = from date of response acceptance (anticipated to be June 2019) to March 31, 2020; and
- Year 2 = April 1, 2020 to March 31, 2021.

The milestones and associated activities are reported within quarters (i.e. April - June, July - September, October - December, January – March).

Key Transition Details:

- 1) ARC: Major Science Initiatives (MSI) operating funding from CFI will exist until March 2022. Therefore, the Compute Canada Federation will continue to be in place until at least March 31, 2022.
- 2) A call for proposal for funding for transitional platform expansion at the existing national host sites has been issued by ISED and is expected to bring new ARC capacity on line for the Compute Canada Resource Allocation Competition in 2020.
- 3) Data Management transitional funding for 2019/2020 is under consideration by ISED. Additional transitional funding for 2020/2021 will be required.
- 4) Research software plan will be informed by the research priority needs assessment and analysis that is undertaken by staff of the new organization.

Milestones	Activities	Timeline
Applicant Board, Advisory Group and Project Team support incorporation activities.	<ul style="list-style-type: none"> • Signatories to proposal (Steering Group) facilitate process to create Applicant Board, Advisory Group and Project Team • Advisory Group (as defined in proposal): <ul style="list-style-type: none"> ○ Provides domain expertise to Applicant Board ○ Helps create linkages to communities for consultation. • Project team: <ul style="list-style-type: none"> ○ Provides Applicant Board with expertise and support to complete incorporation process (i.e. legal, governance, comms, project management) • Applicant Board: <ul style="list-style-type: none"> ○ Incorporates initial numbered company 	July to December 2019

	<ul style="list-style-type: none"> ○ Defines initial corporate objects and by-laws ○ Negotiates start-up agreement with ISED ● Applicant Board, with advice of the Advisory Group and support of the Project Team: <ul style="list-style-type: none"> ○ Oversees and facilitates activities; ○ Defines and executes required communications ○ Consults with community to finalize definition of members ○ Identifies/recruits independent members ○ Refines corporate objects and by-laws based on results of consultation 	
<p>Establish Inaugural Board</p>	<ul style="list-style-type: none"> ● First meeting of members: <ul style="list-style-type: none"> ○ Elects inaugural board ○ Confirms amendments/updates to initial by-laws ● Inaugural Board: <ul style="list-style-type: none"> ○ Appoints Chair ○ Creates Board Committees ○ Finalizes approach for identification of members of the User Council ○ Initiates competitive and transparent recruitment process for CEO ○ Hires CEO ○ Establishes User Council 	<p>January to March 2020</p>
<p>Launch new org and develop organizational work plan to March 31, 2021</p>	<ul style="list-style-type: none"> ● CEO: <ul style="list-style-type: none"> ○ Develops organizational structure and staffing requirements ○ Establishes organizational operating policies ○ Hires staff ○ Defines organizational work plan to March 31, 2021 ○ Ensures proper communication with the DRI community to ensure that it is kept informed of activities 	<p>April to June 2020</p>

<p>Develop Investment Framework</p> <p>Start integration of key national infrastructure and services</p> <p>Finalize key performance indicators</p>	<ul style="list-style-type: none"> ● CEO and Board: <ul style="list-style-type: none"> ○ identify key areas for strategic and future investment in years 3 - 5 within the funding envelope ○ ensure integration with strategic and operational plans and driven by researcher priority needs assessment ● Working with existing service providers, including national host sites and ARC-serving regional organizations, CEO and staff: <ul style="list-style-type: none"> ○ Begin to integrate of key national layer infrastructure and services into the new organization ● CEO and staff: <ul style="list-style-type: none"> ○ Develop and finalize key performance indicators that are aligned with the strategic plan 	<p>January to March 2021</p>
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Appendix B: Organizational Chart for the Governance Structure

