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CUCCIO
Communication / Collaboration / Innovation
Representing **CANADA's**
IT LEADERS in Higher Education

Summit 2012
Putting Canada's Researchers First
Toward a **National Digital Infrastructure** in Support of
Research, Education and Innovation in Canada



Vision

Canada's world-class digital infrastructure ecosystem benefits society by accelerating research, innovation and education.

Principles

Integrated:	All essential elements are integrated in a national system.
Inclusive:	The national system accommodates users from a full range of disciplines.
Comprehensive:	The national system provides a full spectrum of service.
Accessible:	The national system is accessible to users regardless of their location, discipline or level of expertise.
Valued:	The national system receives attention and is given priority.
Governed:	The national system has effective oversight, control and direction.
Sustainable:	The national system is designed and funded so that it can evolve and adapt.

Digital Infrastructure Summit 2012

Putting Canada's Researchers First

Toward a National Digital Infrastructure in support of Research, Education and Innovation in Canada

Executive Summary

The cover page presents a vision and set of principles, drafted by the CUCCIO Organizing Committee and reflecting the work done at Summit 2012 as well as the strong similarities in the visions and principles articulated by the break-out groups during the day. We suggest they serve as a concrete basis for further development by the Digital Infrastructure Leadership Council.

The details from each working group as well as a summary of points from the large group discussion are provided in the body of the report.

Next Steps

Based on the discussions in Saskatoon, the Organizing Committee believes there is support for the creation of a Digital Infrastructure Leadership Council and will move forward with its establishment.

The membership of the council will be revised to include researcher representation.

The Leadership Council will be asked to:

- Review and confirm the vision and principles;
- Redefine the approach to the proposed proof of concept project to include identifying the gaps in the current environment and developing a possible roadmap for digital infrastructure for researchers in Canada;
- Identify, and where applicable, execute the actions required to address the gaps;
- Identify and implement the appropriate mechanisms required to ensure buy-in, support and continued participation from the community; and
- Identify the processes required to ensure the outcomes are used to inform the decisions of the appropriate agencies and organizations (i.e. funders and providers).

The council will report back to the participants at Digital Infrastructure Summit 2013.

Vision and Principles

At DI Summit 2012, the participants formed six groups, each of which produced a vision statement and a set of principles. The vision statement is a single sentence that captures the future state to which we aspire. The principles describe what is most necessary to achieve the vision.

This document consolidates the output from the six small groups into a single vision statement and set of principles.

The set of principles was determined by grouping those suggested by the small groups under headings that capture common themes. Some of the principles fit under more than one heading. There is no order of priority.

Vision

Canada's world-class digital infrastructure ecosystem benefits society by accelerating research, innovation and education.

For reference, the six small group vision statements were:

- Canada's world-leading digital ecosystem accelerates research, innovation and commercialization for the prosperity of all Canadians.
- Canada has a world class digital ecosystem for research and education leading to innovation, discoveries and economic benefits.
- Canada has a digital infrastructure environment for world-class research that benefits society.
- Enabling communities of understanding to create, access and utilize shared digital information.
- A world-class Digital Infrastructure ecosystem for knowledge and discovery.
- Canada is a global leader in national and international research and innovation through optimal use and reuse of data as a resource for economic and social prosperity.

Principles

Integrated: All essential elements are integrated in a national system.

Small group principles included:

- National cooperation to remove barriers to create a simplified, integrated, national governance model that provides demonstrable value to all stakeholders. (group 1)
- There is an integrated system recognizing the importance of networking, computation, software, support, and data preservation. (group 2)
- National coordination of priorities and resources. (group 3)
- Comprehensive, integrated and internationally connected infrastructure is accessible across the country. (group 6)

Inclusive: The national system accommodates users from a full range of disciplines.

Small group principles included:

- Supports research and education across all disciplines regardless of location. (group 1)
- Supporting diverse research needs responsively across a wide spectrum of activities. (group 2)
- Flexibility to support emerging research communities that cross boundaries. (group 4)

Comprehensive: The national system provides a full spectrum of service.

Small group principles included:

- Addresses the full spectrum of needs, from the physical infrastructure, to the software applications, to the people support. (group 1)
- Agile, interoperable, open, standards-based to support diverse research needs. (group 3)
- Ensuring capacity to provide preservation and curated access to research data. (group 4)
- Networked compute capacity to analyze and present data in order to create new value. (group 4)
- Providing inclusive services, support and outreach. (group 4)

Accessible: The national system is accessible to users, regardless of their location, discipline or level of expertise.

Small group principles included:

- Researchers know how to derive full benefit from DI resources and support. (group 3)
- A cohort of experts who build, sustain and evolve the infrastructure and assist and train in its use is deployed. (group 6)
- Barrier-free access to properly curated data, with full respect for issues of security, privacy and IP is pervasive. (group 6)

Valued: The national system receives attention and is given priority.

Small group principles included:

- Digital infrastructure is a Canadian priority. (group 2)
- Decision makers recognize the strategic value of DI. (group 3)

Governed: The national system has effective oversight, control and direction.

Small group principles included:

- Governance and leadership. (group 5)
- A nimble governance structure that anticipates and evolves to meet future needs. (group 1)
- An implementation strategy. (group 5)

Sustainable: The national system is designed and funded so that it can evolve and adapt.

Small group principles included:

- A plan for sustainability. (group 5)
- There is a sustainable financial model supporting continual renewal (evergreen technology). (group 2)
- Sustained and predictable commitment and funding is assured. (group 6).

Large Group Discussions

Vision and Principles

- Should the vision reflect or describe a “reach” target? Or the status quo? (e.g. world-leading, world-class, cutting-edge, leading)
- Should the vision reflect the needs of the community? Or the needs of the funders?
- Can the vision statement and supporting principles balance the tension between what “Ottawa” wants or needs to hear and what will resonate with the community (i.e. researchers, institutions, “the academy”)? For example, “supporting education, innovation and research, to the benefit of society, for economic benefit”?
- What is the appropriate phrase to use? The DI eco-system, the DI environment or the DI?

Leadership Council Membership

- It is vitally important for the research community to participate in the development of the vision, and then engage with the council to identify what needs to be done to achieve that vision.
- Where are the researchers? Should the council include individual researchers or is there a proxy for the research community?
- The discussions will need to be informed by best practices for digital infrastructure for research, including what is currently available in Canada, the gaps, and what we need to do to address the gaps. These must all be available to the council.
- The funders (granting councils, Industry Canada) will need to both inform the discussions and be informed by the discussions, but all may not need to be members of the council.

Proof of Concept

- What are we trying to do with Proof of Concept? Identify gaps in the agencies? Gaps in the ecosystems? Gaps in the process? Gaps in the funding process? What about operations?
- A suggestion was made to detach the proposed proof of concept from the council in terms of funding, but to maintain the role of the council as advising and guiding its implementation.
- Could the current ecosystem be mapped in order to identify the gaps (versus launching another research project)? Could the international polar year project be used?
- There is a lot of activity in Canada that could provide examples—we don’t have to demonstrate whether this can be done. Perhaps the proof of concept should be viewed as a set of demonstration projects where gaps are identified and addressed.
- Is an appropriate next step to undertake a “Jenkins” style report highlighting the strengths and weaknesses in the current digital infrastructure for research and education in Canada?
- Perhaps we could ask current researchers where the gaps are in what they are doing, and what can be done in one year to address them?

- An alternative may be to gather information from infrastructure projects that have failed. Use a prototyping versus full pilot project approach.
- A suggestion was made to use the proof of concept to expose the inefficiencies and gaps in the current ecosystem including showing how can we all work together.

Identifying and Addressing the Barriers

The final discussion session of the day was framed by Jonathan Schaeffer, who noted that the efforts and activities undertaken to date by many of the organizations and individuals in the room (vice-presidents research, presidents, researchers, Industry Canada, the granting councils, CANARIE, Compute Canada, CIO's, etc.) have succeeded in raising the profile of the "digital infrastructure for research." However, in order to move forward, as a community we must:

- identify and break down the barriers, and;
- commit to the changes necessary, both within and among the organizations involved.

Jonathan posed the following two questions to the group:

- How do we knock down the barriers?
- Who is in?

The large group discussion highlighted the following areas or issues. Please note that the groupings only reflect the opinion of the note-taker.

Policy Framework & Leadership

- Success in other jurisdictions has been due, in part, to senior bureaucratic and political leadership, especially in developing the necessary policy framework within which to define and implement a vision for digital infrastructure.
- In the absence of the necessary policy framework, our efforts have been focused on supporting a "bottom up" approach to addressing the need for a national ecosystem of digital infrastructure for research in Canada.
- Who, in the political and bureaucratic arena, can act as champion for this initiative? David Johnson? Tom Jenkins?
- What is the current thinking with respect to the "digital economy strategy"? Could this provide the policy framework required?
- Does the "commitment to act" start with this group?

Leveraging current and past activities

- Can we build on or leverage the evolution of a national structure for Compute Canada (to be concluded in the fall)? Perhaps the discussion could be broadened to include CANARIE, CARL and/or other organizations involved in the "digital infrastructure".
- Can we build on past examples of the community coming together? For example, the existing national backbone network (now called CANARIE), is a result of the community coming together.
- Is there any opportunity to coordinate the activities within the funding agencies?
- Compute Canada: current activities and discussions can and should be coordinated with the planned next steps resulting from DI Summit 2012.
- Research Data Canada is emphasizing the need for a national data strategy as part of the overall DI strategy.

Community Buy-in, Communications and Advocacy

- In order to be successful we need to identify who or what organizations need to be “on board” in order to achieve the vision.
- Granting councils may be players, but not, however, the “owners” of the outcome.
- Researchers are key players.
- Do we need to find a single political champion? Perhaps we already have the access and what is needed is a coordinated message.
- There is a relationship between the fragmented voices and the fragmented behaviour. The multiplicity of voices will continue to be a distraction and will be a reason for government and others not to act.
- We need to speak in unison as one voice. (e.g. “Building Canada through the Knowledge Infrastructure”).
- What can we do without any new money or a champion? Advocacy will work better if we are to be seen to helping ourselves.
- As recently as two years ago, the need for high performance computing and digital infrastructure was not being discussed. However, there is now a desire to “do something.” Nevertheless, these needs are competing with other priorities in the science & technology-funding envelope.
- The “community” needs to articulate its priorities.