

Pre-budget submission to the

House of Commons'  
Standing Committee on Finance  
2010 Federal Budget

Submitted by

The Canadian Association of Research Libraries (CARL)

August 14, 2009



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## Executive Summary

1. **CARL recommends that the federal government extend the value of its research investment by supporting, through NRC-CISTI, the development of a national research data management program, for which we estimate that an initial investment of \$10 million in each of the next five years would be required.**
  2. **CARL recommends that the federal government promote digital access to and preservation of Canada's documentary heritage by supporting, through Canadiana.org, the Canada Online national heritage digitization project at \$14 million over an initial period of five years.**
  3. **CARL recommends that the federal government increase funding for the indirect costs of research from the current 23.3 percent (\$325 million per year) of direct research funding to 40 percent (\$558 million per year).**
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The Canadian Association of Research Libraries (CARL) thanks the House of Commons Standing Committee on Finance for inviting Canadians to submit recommendations to assist the federal government in preparing Budget 2010. The three recommendations offered here concern support for Canadian research in ways in which Canada's research libraries can play an important part. We urge the government to support research because it is crucial both for the innovation that can lead to economic success and for the learning that is the basis of cultural development and a healthy society. We encourage the government to support research even in—perhaps especially in—a time of economic uncertainty. The research enterprise not only leads to valuable discovery and innovation, but provides employment to thousands of Canadians.

### The Canadian Association of Research Libraries (CARL)

CARL is the leadership organization for Canada's research library community. Our members are the 28 largest Canadian university libraries as well as the three major federal national libraries (Library and Archives Canada, the Canada Institute for Scientific and Technical Information [CISTI], and the Library of Parliament). Our member libraries give full-time employment to over 5,000 Canadians and crucial part-time employment to more than 5,000 university students. Our university library members together serve about 632,000 full-time and 170,000 part-time students and nearly 32,500 full-time faculty members, assisting them with some 2.2 million research inquiries yearly. Our members help a majority of Canada's university researchers to achieve discovery and innovation by providing the library resources and services they need: about 88% of sponsored research (by funding) occurs at the universities of the CARL libraries. Our libraries collectively manage collections of over 43 million books and 1.3 million periodical titles (whether paper or electronic)—among many other resources—to support research, teaching, and learning.

### Recommendations

#### 1. Research Data Management

**CARL recommends that the federal government extend the value of its research investment by supporting, through NRC-CISTI, the development of a national research data management program, for which we estimate that an initial investment of \$10 million in each of the next five years would be required.**

Well over a billion dollars of federally-funded research is conducted in Canadian universities every year through the granting council programs. Huge quantities of digital data are generated in the conduct of this research so that the original research questions can be answered and reported upon. This data, generated through public funding, remains an extremely valuable information asset even after the completion of the original research project. By analyzing in new ways the data already collected in the context of earlier research, new research questions can be answered without the need to collect—at great expense—new data. Such “data mining” research has been especially important in health, environmental, and economic research. CARL strongly

encourages the federal government to allocate funding for the development of a national infrastructure for the digital archiving and management of research data.

Research data is re-used to replicate and verify earlier research findings (especially important in medical research), and re-analyzed to answer research questions that the original researchers had not considered. Inasmuch as original data collection is the most time-consuming and expensive part of most research projects, graduate students working under time and budget constraints often base their own research on already-existing datasets. The return on the research investment of the federal government is greatly extended through data mining research.

Notwithstanding the value of research data for subsequent research, however, the data collected in most research is not accessible to other researchers simply because it is not being stored in a repository where it can be located and used by other researchers—even when research funding policies require this. Currently, data collected in the course of research projects funded by the Social Sciences and Humanities Research Council (SSHRC) is required to be preserved and made available for future research. The same is true for certain classes of research data for research that is funded by the Canadian Institutes for Health Research (CIHR). The realization of these policies has not been achieved, however, because the skills necessary for archiving the data have been in short supply in Canada, because the digital repositories in existence do not always have the technical capacity to accommodate research data in the forms and quantities generated, and because researchers are often not aware of the importance of archiving their data or of the resources that are even now available to assist them.

Data management services are well advanced in the US and the UK; they are just beginning to be developed in Canada. Since early 2008, Canadian research libraries have been working closely with the National Research Council's Canada Institute for Scientific and Technical Information (NRC-CISTI) on the development of a national coordinated approach to research data management in Canada (<http://data-donnees.gc.ca>). Because research libraries already administer digital repositories for the open access archiving of research publications, their involvement in data archiving at universities is a natural extension of library service.

In the context of the NRC-CISTI-led Research Data Strategy Working Group, a "gap analysis" has been conducted to clarify the aspects of data management in Canada that are in greatest need of development (<http://data-donnees.gc.ca/docs/GapAnalysis.pdf>). While this has shown that there is work to be done in all areas, there are especially pressing needs for training of information professionals in data management skills and for the building of digital repository capacity across the country so that, at a technical level, data can be archived and made accessible.

CARL is pleased that NRC-CISTI has, very appropriately, taken the lead in the coordination of a Canadian program for research data management. A coordinated approach, through which expertise and technical capacity can be shared across universities and other research bodies, through which national standards can be created, and through which a unified program of promotion and education can be carried out, is the most cost-effective and fastest way for Canada to develop its data archiving and stewardship capacities.

CARL estimates that approximately \$10 million per year over each of the next five years, administered by NRC-CISTI, for the development of Canada's data management "infrastructure" will be necessary. After this period, ongoing funding will be needed for assisting researchers with the preparation of their data for archiving and for assuring long-term preservation as technology evolves.

## 2. Canadian Heritage Digitization

**CARL recommends that the federal government promote digital access to and preservation of Canada's documentary heritage by supporting, through [Canadiana.org](http://Canadiana.org), the Canada Online national heritage digitization project at \$14 million over an initial period of five years.**

Canada's research libraries, public libraries, archives, and museums have rich collections of rare or unique materials of immense social, cultural, and historical value. The professional and personal pursuits of Canadian citizens and scholars are considerably aided when these materials become available online in a well-organized and high-quality manner. Digital access to our national patrimony will have very positive results for research,

education, further cultural production, and national pride and unity. Digitization is not only important for greater accessibility by Canadians (and others around the world who wish to learn about Canada), but is also important for the long-term preservation of our documentary heritage. We urge the Government to increase funding to our national digitization effort under the leadership of [Canadiana.org](http://www.canadiana.org), Canada's national program for heritage digitization (<http://www.canadiana.org>). As Tom Jenkins of Open Text and others wrote in an August 11, 2009, *Globe and Mail* business op-ed piece:

“...much of Canada's knowledge and creative output remains on shelves in books, journals, government publications, research reports, films and TV productions, and archives. Less than 1 percent is online. We must mobilize our knowledge resources while supporting and encouraging those creating new content.”

Canadiana.org has adopted as its key project, Canada Online, the aim of digitizing, within the bounds of copyright, the approximately four million titles of Canadian documentary heritage that have never yet been digitized. The research and cultural value of having an immediately accessible, searchable, and comprehensive digital corpus of Canadiana (in French, English, and other languages reflecting Canadian diversity) is inestimable. The breadth of this collection, which would include materials from all periods of Canadian history, all regions of the country, and in many original formats, would be a boon to researchers, students, and traditional and new media creators who need to use Canadian source materials.

Not only would the entire collection be directly searchable, but the Canada Online digitization project envisions the value-added creation of edited thematic collections or “curated views” of digitized documents. An example this would be an online discovery portal or virtual museum for the coming 200th anniversary of the War of 1812. Such a resource would be extremely valuable for university researchers and students, for K-12 teachers, for writers and film-makers, and the general public.

The Canada Online project is a project that is truly pan-Canadian. It includes as partners such national institutions as Library and Archives Canada (LAC) and the Social Sciences and Humanities Research Council of Canada (SSHRC) as well as a number of provincial and university partners: Bibliothèque et Archives nationales du Québec (BAnQ), the University of New Brunswick, the University of Toronto, the University of Manitoba, the University of Alberta, Simon Fraser University, and the Stratford Institute at the University of Waterloo.

The Canada Online project has five major sub-components—digitization, preservation, access, research, and development:

- *Digitization* – Mass-digitization centres will be set-up by seven memory institutions across Canada. The focus for the first two years will be text-based content, including books, newspapers, periodicals, government documents, theses, etc. Pilot projects will also be undertaken for other media types to determine the best technologies and practices to deliver mass-digitization economies of scale. Comprising the digitization work are a number of sub-projects in addition to the selection and digitization of materials in itself; it is necessary to build the database, set up metadata import and harvest engines, and develop the discovery portals.
- *Preservation* – A national preservation network of Trusted Digital Repositories (TDR) will be implemented to permanently preserve digital documentary heritage.
- *Access* – A national digital collection index will be implemented to link all Canadian digital collections to maximize the value of the content by making it easy to find, easy to use and easy to integrate into the work environment, schools, research centres, and the homes of Canadians.
- *Research* – Research and development projects will be undertaken to advance digitization, preservation and access technologies and processes. New and innovative techniques for human interface with the vast amount of content will be researched to leverage the full potential of the digitized content.
- *Development* – It is hoped that a number of tools to address a number of issues and opportunities will be developed in the course of the Canada Project. For example:
  - This is an opportunity for Canada to take the lead in the challenging field of access and finding tools, including tools for equitable access to digital content for people with disabilities.
  - There is an opportunity for web-based technologies to be developed that link digital content with collaborative social networking tools to enhance knowledge sharing.

- Because the Canadian documentary heritage is large and diverse and is held by hundreds of institutions, an inventory of collections is needed to identify what needs to be digitized, has already been digitized, was born digital, and is accessible online.

CARL estimates that the full cost of the full Canada Online project will be about \$140 million, which might come from various federal, provincial, and other public and private sources. It is hoped that the federal government might cover a substantial portion of this amount, \$14 million in each of the next five years. As the cost of digitization is heavily for the labour involved, this funding would serve to provide jobs for many, especially university students inasmuch as much of the work would occur on Canadian university campuses.

### 3. Indirect Costs of Research

**CARL recommends that the federal government increase funding for the indirect costs of research from the current 23.3 percent (\$325 million per year) of direct research funding to 40 percent (\$558 million per year).**

The Indirect Costs (of research) Program has been important for Canadian universities because the universities must provide a large part of the material and human infrastructure to support research projects that are directly funded by the federal granting agencies. The direct grant to a researcher covers the costs of a proposed research project that are specific to that project, but does not cover the institutional costs of providing and maintaining such general infrastructure as laboratories, computing networks, library collections, and other institutional research support services: these are, in general, provided by the university where the research will be conducted. We strongly encourage the government to increase its funding of the Indirect Costs of Research program to reach an internationally competitive level of 40 percent of direct federal investment in university research.

In Canada, universities are directly funded primarily by the provincial governments. The emphasis in provincial funding of universities has been on their educational role, with provincial dollars being allocated largely on a per-student basis. This does not fully provide for the infrastructure for the research carried on by the universities in their knowledge discovery role; an activity whose high costs might bear little relation to the number of students enrolled at an institution.

The federal government has been funding the Indirect Costs Program on an ongoing basis since 2003, and the dollar amounts invested by the government have risen. We are very appreciative of the \$15 million increase in the yearly amount of the fund that was announced in Budget 2008. With the welcome increases in research funding through the federal funding councils over the years, however, the Indirect Costs Program continues to represent an overall rate of reimbursement of only about 23.3 percent of direct research funding. This is still significantly below the 40 percent required to develop research support conditions at Canadian universities that are internationally competitive.

As we have noted in earlier briefs on this topic, the United States government not only generously funds university research directly, but also, since 1947, has funded the indirect costs associated with that research. The level of funding through its indirect costs support is 40-70 percent of the value of the direct research funding, depending upon the public or private status of the university. The best scientists and scholars can choose to work where they can rely on having the best research conditions, which the coverage of indirect costs helps to create. If Canadian universities are to attract the best researchers and be engines of development of similar strength as their American counterparts, the Government of Canada would do well to cover the indirect costs of research at a similar level to that in the United States. In the United Kingdom and the European Union, the indirect costs of research are also covered at rates of 40-60 percent of the direct funding for research.

The Indirect Costs Program has been important for Canadian research libraries in their role as support units to campus researchers. The Indirect Costs funding that is apportioned through their parent institutions has allowed university libraries to more easily support research in various important and exciting ways. The paragraphs below give some examples of these. It should be noted here that university library contributions (in staff time and IT support) to a national data management program and to a national digitization effort might also be partially supported by Indirect Costs funding.

Indirect Costs funding has made it easier to develop collections to support researchers working in new and specialized fields of inquiry. Researchers need access to the published scholarly, scientific, and professional literature of their fields, material that must be current and which may be published anywhere in the world and in any language. Because this material is very specialized (and expensive), a library may find it difficult to purchase or license it through regular funding because it may not serve to support undergraduate teaching as much as other more general materials. Yet without access to specialized research materials at their universities, Canadian researchers and their graduate students would be greatly disadvantaged. CARL notes with continuing appreciation that the federal government has recognized this need by supporting under other programs the Canadian Research Knowledge Network (CRKN) and its forerunner, the Canadian National Site Licensing Program (CNSLP), but the Indirect Costs Program has also been important in this regard.

Another growing research-related activity of academic libraries is the open access publication of the results of publicly-funded research. The federal granting councils have very rightly come to ask that such research results—already paid for by Canadian tax payers—be made publicly available without further direct cost to Canadian public institutions and the Canadian public at large. Many libraries have developed institutional or disciplinary online repositories for research reports and articles. Libraries have also been active participants in the development of formal open access publishing of peer reviewed research journals. Initial development costs for these efforts are being covered in part by federal government support of the Synergies project, but various other associated costs of the open access archiving and publishing processes remain to be covered by academic libraries as an indirect cost of the university research enterprise.

All of the research-related library activities described above depend upon state-of-the-art computing infrastructures that are administered and staffed in part by the campus computing service and in part by the library's internal computing services. These systems require considerable development work: much of the necessary hardware and software is not available, or immediately usable, "off the shelf," and regular maintenance and upgrades are necessary. Information technology is a major expense for research libraries, but extremely important for supporting today's university researchers.

Researchers have increasingly involved librarians in the work of their research teams in order to facilitate and make more thorough and efficient the navigation of this world of information. While a high level of collaboration between researchers and librarians has been found to be advantageous, a library still has to staff its more general reference and teaching roles. The Indirect Costs Program has made it easier for libraries to support research teams at a high level and fulfill their ongoing responsibilities to students and instructors in teaching and learning.

CARL realizes that increasing the current funds available through the Indirect Costs Program from 23.3 percent (\$325 million) to 40 percent (\$558 million) would represent a very large increase (\$233 million) that may not be realizable through one budget, but we strongly recommend that the federal government make a significant increase toward 40 percent in Budget 2010.

### **Further Information**

We thank the Committee for considering our recommendations. We would be pleased to expand upon any or all of these matters in an appearance before the Committee if invited to do so. For further information, we invite the Committee to contact:

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