Pre-budget submission to the

House of Commons'
Standing Committee on Finance
2012 Federal Budget

Submitted by

The Canadian Association of Research Libraries (CARL)

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Executive Summary

1. CARL recommends that the federal government more fully reap the value of its investment in research by supporting the development of a national infrastructure for the preservation and exploitation of research data. We suggest a minimum of $2 million in each of the next five years for a pilot Canadian research data management system.

2. Our national research infrastructure is of central importance to Canada's continued growth and prosperity. CARL recommends that the federal government maintain strong support for the essential programs and services that make Canada's research enterprise successful.

3. CARL recommends that the federal government undertake initiatives to increase broadband internet access and the speed of data transfer throughout Canada as part of a national digital policy framework that recognizes Canada's libraries as a key component.

We thank the Committee for considering our recommendations.
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The Canadian Association of Research Libraries is the leadership organization for the Canadian research library community. The Association's members include the 29 major university libraries from across Canada. Our mission is to enhance the capacity of Canada's research libraries to partner in research and higher education, seeking effective and sustainable scholarly communication and public policy encouraging of research and broad access to scholarly information.

CARL thanks the House of Commons Standing Committee on Finance for seeking the views of Canadians on their priorities for support through the 2012 federal budget. We are pleased to submit three recommendations that we believe to be worthy of federal government budgetary consideration. The government has designated this year to focus on sustained economic recovery, the creation of quality sustainable jobs, maintenance of relatively low rates of taxation, and the achievement of a balanced budget. This submission aims to address how Canada's research library community can contribute to the attainment of these goals over the coming years.

Recommendations

1. <u>Enabling the Full Exploitation of Research Data</u>

Each year, the federal government, by way of the three major research funding councils, supports some $2.5 billion worth of research at Canadian universities. In the course of this research, an enormous amount of digital data is generated to answer the original research questions. Much of this research data, which has cost millions of dollars to generate, can be reanalyzed and applied to new research questions. The value that Canadians already derive from this research could be considerably enhanced with a modest investment in a national infrastructure for research data management. Such a national infrastructure would centrally store, organize, and permit access to research data collected and preserved digitally across the country so that it can be shared and reanalyzed to answer new research questions – or produce new solutions – by other researchers and innovators, public or private.

Unfortunately, there is currently no national research data management infrastructure in Canada and consequently, significant amounts of research data are simply lost. Researchers lack the means to store and share their data effectively so that it might be located and exploited by other researchers. This means that important questions in medicine, in environmental conservation, in resource development, and other areas of interest to Canadians—which might be answered through analysis of already-existing data— remain unanswered because that data is inaccessible. In order to maximize its return on investment in research, CARL asks that the federal government support the creation of a national infrastructure for research data management.

Many other G-20 countries have been investing in the development of their national research data management infrastructures. For example, in its 2009 federal budget, the Australian government allocated $48 million over two years to develop an Australian Research Data Commons[i]. This is in addition to $24 million allocated by Australia's National Collaborative Research Infrastructure Strategy (NCRIS). As well, in the US, the National Science Foundation is currently providing $100 million dollars over five years (2010-2015) to support the development of a data management infrastructure under its S*ustainable Digital Data Preservation and Access Network Partners (DataNet) program*[ii]. There are currently national research data management projects in development in both the UK and generally in the EU as a well. For its research and innovation sector to remain competitive, it is imperative that Canada develop a national research data management infrastructure. Considerable ground work has already been laid; what is necessary at this time is federal government funding. If funds were awarded, they would serve to develop new software, to create jobs, to invest in hardware (servers, physical memory, network upgrades), to train data management professionals, to develop and implement a communications plan, as well as other spin off projects. The result would be a functioning prototype repository that would allow data to be deposited, organized and accessed.

At present, the Social Sciences and Humanities Research Council of Canada (SSHRC) and the Canadian Institutes of Health Research (CIHR) have data archiving policies, but compliance by grant recipients with these policies has been limited because of a lack of appropriate repositories and of the skills necessary for handling the data. In 2005, the National Research Council of Canada (NRC) led a National Consultation on Access to Scientific Research Data (NCASRD)[iii], which made the opportunities and the need for a research data management infrastructure clear. To develop more detailed planning around research data management in Canada, a national Research Data Strategy Working Group[iv] was founded. This brings together representatives of the granting councils, research libraries, universities, and other interested groups, who would have an interest in planning and participating in the creation of infrastructure and services for a national data management system.

In the 2010 Consultation Paper on a Digital Economy Strategy for Canada, the government noted that:

> Governments can help by making publicly-funded research data more readily available to Canadian researchers and businesses. Open access is consistent with many national strategies and holds great economic potential for Canadians to add value to machine-readable data, while ensuring that privacy rights are protected. In many cases, data are already available but are difficult to locate. Consistent methods of access will be reinforced.[v]

CARL applauds this forward thinking policy initiative, and encourages the government to take concrete steps through the following recommendation.

A $2 million investment in each of the next five years would take this project from planning to the implementation stage. This investment would allow the Canadian research data community, under a leadership board, to direct and support the development of a working model cross-disciplinary repository for research data across the entire country.

2. Supporting Research Initiatives in Canada

Canada's research enterprise is of central importance for future innovation and prosperity. In the context of a competitive global economy, job creation depends increasingly on a nation's ability to innovate. In Canada, the government has played a crucial role in developing and supporting the research enterprise. Government resources are invested into three major forms of research activity: academic research funding (primarily at universities), government research and provision of research related programs. All three are important drivers of discovery and innovation. Especially in times of economic uncertainty, government must continue to play an active role in the maintenance of existing research infrastructure.

Canada's continued participation in the research enterprise is vital to wealth generation and job creation, providing growth opportunities and the path to future economic successes.

First, through the three federal granting councils, the Canadian government contributes to the fine research undertaken in post-secondary institutions across our nation. Every day, Canada's researchers at universities and hospitals are blazing new trails in the full range of disciplines while training the next generation of researchers. The indirect cost program allows Canada's universities to maintain facilities, systems and campus research services to make the most of the direct research funding.

Second, many government departments contribute directly to discovery and innovation through research undertaken in the fulfillment of their mandate. Departments such as Health Canada, Agriculture Canada, Environment Canada, Natural Resources Canada, and National Research Council make up an important element of Canada's research backbone. The Canadian government has made a significant long term investment in building a strong, stable and diversified research infrastructure.

Finally, the government supports extremely important research infrastructure programs by way of both direct provision of services, and indirect funding. Among the latter CFI is an independent corporation created by the Government of Canada to enhance the capacity of Canadian universities, colleges, research hospitals and non-profit research institutions to carry out world-class research, is an example of effective indirect funding. CANARIE, another example of indirect funding, participates in innovation by linking researchers and academics directly across a dedicated network of high-speed cable, while working to promote the evolution of digital infrastructure.

In addition to the direct funding invested in the existing research infrastructure, Canada's researchers benefit from government provided support services. Chief among these are Canada's national libraries, which serve researchers both within and outside government. These federal libraries play an integral role in coordinating, organizing and providing information to government and non-government researchers as well as the general public.

Canada's national science library serves the information needs of Canada's public and private researchers and is an internationally recognized institution providing innovative and effective leadership in the turbulent, rapidly changing world of scientific, technical, and medical information. In addition to serving the NRC staff, NRC Canada Institute for Scientific and Technical Information (NRC-CISTI) contributes directly to the economy by providing both basic information and value added support to small and medium sized businesses in every region and territory. Some important programs and services that CISTI offers to researchers, innovators, practitioners and business people are especially noteworthy. PubMed Central Canada, the free online archive of published health and life sciences research allows users to quickly and easily search and download the latest health research papers; while providing a permanent archive for publicly funded Canadian health research. It also connects researchers to an international network, exposing Canadian research and researchers to a global audience and facilitating collaboration in advanced health research. The Competitive Technical Intelligence program ensures that decision makers in small technology-based businesses get the best analysis of the available technical and market information. This program spots and tracks the technological, patent, and market trends; so that businesses get better return on their R&D investments and plan more effectively for future success. This contributes directly to job creation by arming Canadian small and medium business with the most up to date information for international competition.

Library and Archives Canada (LAC) facilitates the continued engagement of Canadians in both professional research and personal lifelong learning while preserving the documentary heritage of Canada for the benefit of present and future generations. LAC is a source of enduring knowledge accessible to all Canadians, contributing to the cultural, social and economic advancement of Canadian society.

Library and Archives Canada provides national library services for Canada while preserving the records of the government. From providing important bibliographical services so that resources can be located from coast to coast to coast, to operating a reliable digital repository for the secure electronic conservation of our heritage documents, LAC remains the central archive of Canadian history and the effective memory of the federal government. Its collections are a tool for understanding ourselves as Canadians and promoting our culture and history both at home and abroad.

Each year members of the public, academic researchers, and students consult the documents of its collection, either onsite or online, searching for the answers to their questions to address social and economic problems. Being the backbone of social science and humanities information, LAC contributes directly to the Canadian economy by providing accurate information for policy makers so that they may make the most informed decisions. As the keepers of our national identity and collective history, LAC's programs and services provide rich storehouse of ideas for cultural production and creative arts in the continued renewal of our shared cultural identity. LAC is a trusted digital repository, and has undertaken the project of digitizing its entire collection, making Canadian patrimony instantly available to interested individuals from across Canada, and promoting our culture everywhere in the world. In addition, LAC is actively involved in digital presentation and preservation of Canada's complete documentary heritage, and works with other groups and the public to increase access through digitization.

Canadian research plays a significant role in fueling industrial and cultural innovation and continued prosperity within our nation. Increased focus on the emerging digital economy requires that Canada maintain its crucial information infrastructure in order to support researcher's and fuel innovation. In the current environment of economic austerity, it is vital that Canadian research continue to have reliable access to strong support programs and services that Library and Archives Canada and the Canada Institute for Scientific and Technical Information provide.

CARL recommends that the federal government strongly support the essential programs and services that make Canada's research enterprise successful by maintaining the current level of funding to Canada's research infrastructure and its support services.

3. Increasing broadband Internet access and the speed of Internet data transfer throughout Canada.

Increased access to broadband Internet is of vital interest to researchers, instructors, students, entrepreneurs and small businesses across the country. Libraries, universities and colleges are actively undertaking to offer services online. Initiatives that increase access to high speed Internet data transfer would serve to increase Canadians' Access to online learning resources for career development as well as to digital library materials, encouraging the goal of life-long learning. This would seem to complement the government's stated goals of preparing Canada to take part in the emerging international digital economy, while arming more Canadians with the tools to participate and compete in the online marketplace. CARL would recommend that the government undertake some cost-neutral policy measures to encourage increased access to broadband Internet for Canadians.

Currently, according to the most recent OECD report, Canadians pay more for broadband services than consumers in most other developed countries. On average, Canada is ranked 28 out of 33 both in terms of average monthly subscription price and price per megabit, while remaining one of the only countries with universal caps on data transfer. Moreover, in terms of broadband penetration, Canada fell from ninth (out of 30) in 2009 to 22nd (out of 33) this year. While this still qualifies as average, it represents the continuation of a trend in Canada's broadband penetration rates. In spite of a high level of consumer interest, the price of service remains restrictively high, and the level of new access is decreasing.[vi]

Access to broadband Internet is crucial for distance education and training. This provides opportunities for working Canadians to improve qualifications on a schedule that is convenient and flexible; while permitting on the job training from anywhere in the country. Instructors can make course materials available online, can coordinate teaching materials between one another, can get access to research data, and develop new and interesting ways of teaching. As Canadian historical and cultural documents are digitized, Canadians as well as people all over the world rely increasingly on broadband infrastructure

to both gain access and contribute to the this growing online resource. Those Canadians, who have not yet entered the work force, would benefit from a variety of online opportunities for career preparation through increased access to courses and library materials. Small and medium size business also benefits from cost reductions, more efficient service, and improved access to larger online markets. Increased broadband access, in rural and urban communities' alike, permit augmented access to health, education and business services. Programs like the National Satellite Initiative, run through Industry Canada to increase broadband penetration to rural areas, are excellent and could be complimented in some cost neutral ways.

Promoting competition in the broadband marketplace would increase Internet speeds as well as broadband penetration levels. CRTC Vice-Chair Len Katz recently stated that "…*there is a need to create competition, more competition in order to protect Canadians…*"[vii] In addition, steps to protect customer interests, perhaps through an extension of the mandate of the CRTC to uphold current Canadian telecommunications standards, would also encourage infrastructure investment. The only outlet current available to individuals who are experiencing poor service is the CRTC. The audit process for complaints to the CRTC involves many barriers difficult for regular customers to overcome, rendering accountability in the industry nearly impossible. This or another audit process should be enacted to protect users and should be accessible and effective.

CARL believes that increased access to high speed Internet is in the interest of all Canadians, and encourages the government to undertake simple policy initiatives to bring about this access. Encouraging increased ISP competition, while providing an access oriented complaints process, would be a cost neutral way to begin to address these particular issues.

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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[i] See the Australian National Data Service page "ANDS attracts new funding" at http://ands.org.au/ardc.html.
[ii] The Sustainable Digital Data Preservation and Access Network Partners (DataNet) program can be found at http://www.nsf.gov/pubs/2007/nsf07601/nsf07601.htm.
[iii] The 2005 *Final Report of the National Consultation on Access to Scientific Research Data* (NCASRD) can be found at http://data-donnees.gc.ca/docs/NCASRDReport.pdf.
[iv] Documents of the Research Data Strategy Working Group can be found at http://data-donnees.gc.ca/eng/index.html.
[v] *Improving Canada's Digital Advantage: Strategies for Sustainable Prosperity* (Government of Canada, 2010) http://de-en.gc.ca/wp-content/uploads/2010/05/Consultation_Paper.pdf, page 14.
[vi] See OECD broadband-related statistics at http://www.oecd.org/document/54/0,3746,en_2649_34225_38690102_1_1_1_1,00.html
[vii]Transcript of proceedings before the Canadian Radio-Television and Telecommunications Commission; SUBJECT: Review of billing practices for wholesale residential high speed access services. Notice of Consultation CRTC, Volume 5, 18: CRTC 2011-77, 2011-77-1 and 2011-77-2, (http://www.crtc.gc.ca/eng/transcripts/2011/tt0718.html)

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