

*“Digital Community Innovation
Centres:
Innovation Hubs for a Digital Canada”*



Response to the
Innovation Agenda Consultation
conducted by the
Ministry of Innovation, Science and Economic
Development
(ISED)

March 21, 2017:

by

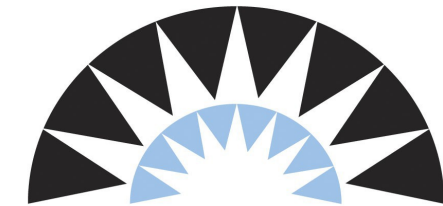


and

Canadian Federation of Library Associations (CFLA)
Fédération canadienne des associations de bibliothèques



:. ontario library association



British Columbia
Library Association

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Executive Summary

The Canadian Association of Community Television Users and Stations (CACTUS), the Canadian Federation of Library Associations (CFLA), the Ontario Library Association (OLA) and the BC Library Association jointly propose that the Department of Innovation, Science and Economic Development (ISED) contribute funding to a network of Digital Community Innovation Centres (DCICs) across Canada to:

- i) drive innovation in our creative industries and
- ii) equip civil society and small- and medium-sized businesses with the digital media skills to thrive in the digital economy.

The aim of DCICs is to stimulate the Canadian economy by delivering training and production support to citizens, service organizations and businesses to produce traditional media (radio and TV, aka audio and video) and new media (web design, online and social media, games) that promote their activities and organizations. We propose that DCICs be hosted within the existing and extensive national network of public libraries, and not-for-profit community-based TV, radio, new media, and gaming organizations. This proposal builds on the highly successful Community Access Program that promoted Internet literacy in the 1990s and 2000s via a partnership between Industry Canada and many of the same public-interest institutions. This is a practical and cost-efficient approach to implement the digital training goals in ISED's *Innovation Agenda*.

DCICs will be accessible to the majority of Canadians in communities. Because public libraries and community media organizations are highly accessible throughout Canada, even in remote communities (which often find themselves on the wrong side of the digital divide), this model of skills delivery will target those communities that need them most. Within a community setting, clients will acquire digital media skills and production support from experts using the equipment and space provided. DCICs will support community learning, economic development, professional networking, democratic discourse, and the production and exhibition of local news, information, cultural, and educational content. DCICs will act as creative clusters, around which producers and technicians can collaborate to learn and grow our digital media industries while equipping non-media sectors and workers with the media skills they need for self-promotion, visibility, and communication in the digital economy.

Funding will support the staff to train and provide production support. It will also be used for the acquisition of production equipment (audio-visual, computers) and space (modifications to existing space or creation of new space).

To administer a DCIC program, we propose the creation of a Community Access Media Fund (CAMF), supported by eight (8) different government departments, each in alignment with its own program goals. CAMF will monitor and report on the progress of the program and help DCICs achieve the desired results by managing the funding and reporting processes, and by offering guidance and administrative support to DCIC grantees.

Rationale:

1) *DCICs Drive Innovation and Growth*

The Canadian economy is in transition, moving away from manufacturing. The digital media sector has demonstrated its potential to grow our economy and promote our culture by spurring innovation in:

- i) **Traditional Media**—One television show can generate up to 10,000 jobs (e.g. *Murdoch Mysteries*) that can be exported to over 100 countries. In 2015/16 the screen sector value chain in Canada generated an estimated \$20.2 billion in GDP for the Canadian economy, including \$9.9 billion of GDP directly in the value chain industries (i.e. direct impact) and \$10.3 billion in GDP in other industries within the Canadian economy (i.e. spin-off impact).¹
- ii) **Video Gaming and Related Online Industries**—which by some metrics now surpass the size of the North American film and television industry. The Canadian video game industry is the 5th largest in the world, and can continue to expand, if we can meet demand for skilled workers.
- iii) **Non-Media Industries**--Coding, social media, web design, and traditional media such as video require skills that small, medium and large businesses increasingly need in-house or available at low-cost to promote themselves, to communicate with clients and suppliers, and to support

¹ <http://cmpa.ca/sites/default/files/documents/industry-information/profile/Profile%202016%20EN.pdf>

functions as diverse as accounting, design, engineering, inventory, and training. Even large organizations such as the Canadian Tourism Commission are soliciting promotional videos from grassroots creators via social media. Small businesses can do the same. DCICs will provide the digital media skills and production support smaller players need.

2) *DCICs Strengthen Partnerships and Build Social Capital:*

This proposal builds on former Federal program successes. The Federal government has a history of partnering with public-interest institutions to promote media literacy. Starting in the 1940s, the National Film Board of Canada provided Canadians access to its film collections through public libraries, stimulating awareness about other parts of Canada, and the cultural and economic conditions that made them unique. Since then, Industry Canada has worked with public libraries and other public-interest stakeholders to deliver the highly successful Community Access Program (CAP) to help Canadians bridge the digital divide and access the Internet. Through the CAP, Canadians learned new skills and laid a foundation of skills for our digital industries. The Community Access Program was regarded as one of the Chretien government's key legacy projects, advancing our national interests concerning Internet access and economic development. This DCIC proposal builds upon the foundation laid by CAP, as ISED increasingly invests in skills training and social solidarity.

3) *DCICs Utilize Infrastructure Supported by Past Departmental Programs:*

In addition to sponsoring the Community Access Program, Industry Canada has sponsored the Connecting Canadians program and the Rural Broadband Initiative, both of which have expanded access to highspeed broadband so that Canadians can access data-rich media on line. This proposal builds on those investments strategically and cost-efficiently, to advance our economic and cultural interests. Once Canadians have the pipes to access content from across Canada and around the world, they will need the multimedia digital skills to fill those pipes for their own self-promotion and to share and market Canadian content, products, and industries at home and abroad.

Identification

This proposal has been developed by four associations:

- The Canadian Association of Community Television Users and Stations (CACTUS)
- The Canadian Federation of Library Associations/Fédération canadienne des associations de bibliothèques (CFLA-FCAB)
- The Ontario Library Association (OLA)
- The British Columbia Library Association (BCLA)

The Canadian Association of Community Television Users and Stations (CACTUS) has been working with the OLA and the former Canadian Library Association to elaborate a vision to serve Canadians with digital media skills training, tools access, and multiplatform distribution since 2010. Since then, our dialogue has expanded to include the newly constituted CFLA and the BC Library Association.

The Canadian Association of Community Television Users and Stations (CACTUS)

The Canadian Association of Community Television Users and Stations (CACTUS) is the professional association that represents not-for-profit community media organizations whose mandate is to ensure that Canadians have access to the digital literacy skills, tools, and platforms they need to be function in the digital environment. CACTUS' vision has evolved from its roots in community television to include multimedia and multiplatform access, including web design and video gaming²

We represent:

- not-for-profit community TV license holders and productions groups whose content is distributed over the air, on cable, satellite, and the web
- not-for-profit organizations interested in media literacy and democratic access, including two public libraries
- individual Canadians concerned about media literacy and democratic access

We provide a complete list of our member stations and production groups in Appendix B.

² For more information about CACTUS, see cactus.independentmedia.ca.

The Canadian Federation of Library Associations

The Canadian Federation of Library Associations is the national voice of Canada's library associations. Its purpose is to:

- advance library excellence in Canada;
- champion library values and the value of libraries; and
- influence national and international public policy impacting libraries and their communities.

The Ontario Library Association

The Ontario Library Association includes more than 5,000 members from public, school, academic and special libraries. OLA empowers members to build knowledgeable, informed, and participative communities through education, research, advocacy and partnerships.

The British Columbia Library Association

The British Columbia Library Association is a continuously operating association of libraries, library leaders, librarians, and library staff for over 100 years. The Association represents over 900 members committed to library advocacy, professional development and supporting intellectual freedom. BCLA works to ensure that our communities, through our libraries, have equitable access to information, ideas and works of the imagination. We believe that libraries are a cornerstone of democracy providing access to information for all community members regardless of economic, social, political, or cultural position. Libraries are open to all, serve all, and support all.

ISED's Inclusive Innovation Agenda



This proposal responds to three of the Innovation Agenda questions, drawn from the themes “Entrepreneurial and Creative Society” and “Compete in a Digital World”.

They are:

1. What are innovative ways to develop stronger digital skills among Canadians?
2. How do we work together to equip youth with the right skills for the future economy?
3. What more can be done to cement Canada's place as a leader in social entrepreneurship?

Access by All Canadians

Both public libraries and community media centres are ideally situated in communities to develop digital skills as part of life-long digital literacy support. They are accessible to both youth and Canadians of all ages (questions 1 and 2). Question #3 raises a subtle and important factor that we believe should not be underestimated in implementing Canada's Inclusive Innovation Agenda. *How* digital skills are transmitted is key to their retention, application, and the creativity with which we can leverage them as a society.

The more complex and varied the tools, the more we need physical places in communities where people from *all* walks of life can congregate to learn how they are used. How do start-up companies or non-profit organizations with limited budgets design web sites that will be found quickly by search engines? How do they produce a video to capture the attention of web visitors? How can the non-profit stage a debate to find the optimal solution to a land-use or resource issue, a structural, economic or social challenges, and then rebroadcast that debate to segments within the community that couldn't attend in person?

The first significant international statement regarding the importance of digital access points at the community level was made at the 2003 World Summit on the Information Society in Geneva. The resulting *Declaration* stated at paragraph 24:

*"The ability for all to access and contribute information, ideas and knowledge is essential in an inclusive Information Society."*²⁷

As such, the former Industry Canada's CAP program and its public-library partners and administrators were ahead of their time, but the point was never just about Internet access. It was about having the skills to leverage that access... to *contribute* ideas and knowledge as well as to consume it.

In October of 2009, the Knight Commission presented a report to the FCC entitled *Information Needs of Communities in a Democracy*, which included an updated statement of the same idea:

"Information is as vital to the healthy functioning of communities as 'clean air, safe streets, good schools, and public health... Informed communities can effectively coordinate activities, achieve public accountability, solve problems, and create connections...To achieve the promise of democracy, it is necessary that the creation, organization, analysis and transmission of information include the whole community".

The Skills We Need

To function in our culture—to be seen, heard, to network, to apply for jobs, to fill out your tax return, to start a business, to run an arts organization, to build momentum for changes in your neighbourhood or around the world—many of the basic media literacy skills we need as citizens and players in the digital economy haven't changed:

1. We need to master print (reading and writing). This is taught in school.
2. We may need to produce audio content. We may have to learn to record and edit (what button to push), as well as what questions to ask, how to provide a balanced analysis or to argue a point. These are editorial skills that are not taught in school in Canada except fleetingly as part of a single Media Literacy module offered by most provinces in grade 11 Language Arts. These skills build on print literacy.



3. We may need to produce video content, the bulk of the rich data driving the demand for more bandwidth. In addition to the editorial skills to package print and audio content, we need to understand and articulate our ideas *using moving pictures*. These skills are not taught in most schools, except for a minority that have media studios and electives.



4. There is a genuinely new mass medium since the introduction of moving pictures: the programming structure of games, which combine the other three elements with interactivity. Programming skills are taught in some schools as an elective, but need to be combined with print,



of

audio and video/graphic literacy skills for an individual to participate in or even to clearly understand the impact of North America's largest media industry, which is employing record numbers of post-secondary graduates. Coding skills are applicable in almost every industry, underpinning data storage and retrieval systems and computational tasks in fields as diverse as engineering, urban planning, health, and government.

In addition to the four basic media (print, audio, video, and coding), there are an endless array of tools for accessing, combining, and distributing digital content, some or all of which have to be mastered, if you want to be seen, heard and interact with other individuals, local, regional, national businesses, organizations and institutions, in our multimedia universe.

Keeping Pace with a Moving Target

These media will keep changing, as will the tools for accessing, distributing, and combining them. In order for digital literacy skills to be widely disseminated and upgraded over time, they have to be made available from community-based organizations that are there for the long haul. These skills also must also be taught in context, and applied to real-life problems for maximum retention.

There has been wide recognition of these facts in Canada. For examples:

- ➔ The Digital Economy Strategy published by Industry Canada in 2015:

“To harness the limitless potential of an interconnected global economy, Canadian companies and consumers need to be able to access advice and support to make the best use of digital technology ... We will help make that possible by supporting ... Canadians with opportunities to acquire in-demand digital knowledge and skills.”²⁸³

- ➔ The Standing Committee on Canadian Heritage 2012 report *Emerging and Digital Media: New Challenges and Opportunities*:

“Recommendation 9

The Committee recommends that the Department of Human Resources and Skills Development review its policies and programs in order to ensure that priority is given to training in digital skills.

³ See <http://www.ic.gc.ca/eic/site/028.nsf/eng/home#item5>

Recommendation 14

The Committee recommends that the Government of Canada review the system of grants and contributions in order to encourage innovation in the digital media sector.

Recommendation 15

The Committee recommends that the Government of Canada strengthen the digital media components of its programs for arts and culture

Recommendation 8

The Committee recommends that the Government of Canada examine the proposal of the Canadian Association of Community Television Users and Stations (CACTUS) for the establishment of community-operated multimedia centres and access to material online as way of encouraging people to develop digital skills.⁴

- ➔ A ccart.ca published on December 15, 2015 entitled, “Why the digital economy’s biggest threat is lack of user participation”:

“95% of survey respondents said they have access to the Internet in some way, shape or form, but 56% were identified as being only moderate or low (including very low) in terms of digital participation...“the lesson for governments in this is you may build it and they may not come. So you need to build and then at the same time communicate the benefits and spend a lot of time (on education and awareness)...There’s a bit of myth-busting ... that has to happen around the opportunities of what is out there around the Internet”

⁴ See <http://www.parl.gc.ca/HousePublications/Publication.aspx?DocId=4838683&Language=E&Mode=1&Parl=40&Ses=3>

A Common Vision for Multimedia Digital Skills Training and Access

Community Media

Community media in Canada have consisted since their inception in the late 1960s to the 1990s of two media: radio and television. Canada's community media policies were developed as an initiative of 8 federal government agencies (including the former Department of Industry) in the late 1960s as a way to reduce poverty by promoting economic development. The initiative was called “Challenge for Change” and was spear-headed by the National Film Board:

“Challenge for Change used film and video production to illuminate the social concerns of various communities within Canada, with funding from eight different departments of the Canadian government. The impetus for the program was the belief that film and video were useful tools for initiating social change and eliminating poverty.”⁵

Thanks to a famous case study on Fogo Island (later expanded to impoverished communities in Alberta, Quebec and other parts of the country), these ministries realized that in order for communities to respond to entrenched social and economic challenges, they needed a means to articulate those challenges, and to unite community members with common purpose to overcome them. This tool of articulation was implemented by way of CRTC policy for “community TV”, which expected local cable operators to provide media literacy training, production tools, and local content distribution for communities from coast to coast. CRTC policies for community radio developed side by side. Community radio was implemented over the air, for which the Department of Industry issued broadcasting certificates.

Communities benefitted from the virtuous circle of having free local access to skills training and the immediate possibility of practicing their skills for the community's benefit. These opportunities drove further interest from more community members to learn more skills, to create more content, and so on. Community media became an integral part of civic life, offering life-long media skills training beyond the print literacy acquired in the public school system.

Since the late 1990s, CRTC policies for community media have not met the demand for digital literacy. On the one hand, cable companies have consolidated

⁵ https://en.wikipedia.org/wiki/Challenge_for_Change

and are no longer community-based 'mom-and-pop' operations. They have evolved into national telecommunications giants headquartered in our biggest cities. Their cable systems have been technically interconnected. The 'head ends' that were once required in small communities to receive and redistribute remote signals by microwave dish have been removed, along with the cable production and training studios with which they were once co-located. Due to these two factors, the majority of Canada's more than 300 erstwhile community TV production studios have closed. A few not-for-profit community-based TV stations have come forward to ask for licenses to fill the gap, but there are fewer than 10 nationwide and they struggle to survive.

Meanwhile, digital media and online tools have proliferated, and the importance of video gaming and coding as an industry has surpassed the size of the film and television industries combined. Because the CRTC has elected not to regulate the Internet, it is not positioned to develop a coherent approach to media literacy training in the digital environment.

CACTUS partnered with Carleton University's School of Journalism and Communications in 2015 to conduct research among community media practitioners and researchers to develop a policy proposal to support community media in the digital environment. The research concluded that the most efficient approach would be to support multimedia digital skills training and content creation from single access points within communities, or networked hubs in the case of large cities—that is, an integrated approach to training and production support for traditional and new media, not a silo-ed approach.

Public Libraries

During the same period, public libraries have moved beyond book repositories and have spearhead initiatives to stimulate the digital economy. For example, public libraries partnered with Industry Canada to implement its Community Access Program (CAP), which offered free Internet to Canadians from over 3000 access points across the country, most within public libraries. Many public libraries offered web design and digital skills training, through the CAP program's off-shoot the Youth Initiatives Program. While the CAP program was discontinued in 2012, better resourced public libraries in larger centres have taken this evolution to the next level by offering 'maker spaces' where members of the public can access training and digital tools for media production, including cameras, green screens, audio-visual editing suites, recording studios

and hacklabs for coding. For example, the web site of the Toronto Public Library describes its Digital Innovation Hubs as:

“Through partnerships, transformations of our physical and virtual spaces, and the use of new and emerging technologies, Toronto Public Library creates cultural and creative destinations that stimulate and support creativity, encourage collaboration, and spark experimentation and innovation for creators and entrepreneurs of all ages.”⁶

Some smaller libraries are also getting into the act as well:

Innisfil Public Library’s IdeaLAB offers a 3D printer, vinyl cutter, and laser cutter. The library also offers training in using email and online security and runs a technology social club for seniors (“Appy Hour”). Its Check Out a Skill program pairs library users with a library staff member for one-on-one training sessions.⁷

Overall, this Ontario government web site notes:

“Ontario public libraries offer 11,500 computer workstations, 9,598 with Internet access. In 2013, they delivered 18,393 technology, social media, and computer literacy programs.”

However, while the benefits and need for broad-based access to digital skills training and tools are well understood within the public library community as a whole—and most public libraries see such access, training and tools as part of their mandate to support media literacy—fully equipped maker spaces are beyond the budgets of most. As the Canadian Urban Libraries Council noted in its recent submission to the “Canadian Content in a Digital World” consultation conducted by the Department of Canadian Heritage:

“Public libraries require physical changes to existing spaces to create open and engaging makerspaces for digital conversion centres, 3D printing, and provide production studio facilities for the creation of music, videos, webinars, podcasts, and broadcasts”

⁶ See: <http://www.torontopubliclibrary.ca/about-the-library/strategic-plan/create.jsp>

⁷ See <https://www.ontario.ca/document/environmental-scan-culture-sector-ontario-culture-strategy-background-document/sector-profile-public-libraries>

Aboriginal communities in particular tend to be under-resourced, and may have no library infrastructure:

“First Nations public libraries, particularly in remote communities, are an important resource for free access to information, Internet, and community spaces. Through their collections, exhibitions, and programs, they preserve and promote cultural traditions. In 2013, First Nations public libraries provided almost 200 culturally specific programs, including 116 First Nations Public Library Week programs and 80 First Nation Communities Read programs. However, of 133 First Nations communities in Ontario, only 45 had public libraries in 2013.”⁸

The Rationale for a Community Media-Public Library Partnership

While a few maker spaces and public libraries regularly distribute content generated in digital media workshops (for example by streaming), the public library community lacks the community media practice by which skills acquisition results in the virtuous circle of skills acquisition, production *and* dissemination, leading to the demand for renewed skills acquisition by expanding circles of community members that see content produced in earlier rounds. For example, while a few public libraries offer workshops in coding, there may be little follow up or support once a workshop is concluded, to enable participants to deploy skills within the community, or to make connections with those working in the video game or computer software industries to take their skills to the next level.

For these reasons, both public libraries and community media organizations—while starting from different beginnings—have common historical mandates to promote media literacy, and have converged on a common vision of Digital Community Innovation Centres where Canadians can 'one-stop-shop' to acquire skills in the digital economy, and to apply those skills to create local content and greater visibility for community players and issues, the traditional forte of community media.

Determinants of Success:

We believe there are three determinants of success for digital skills training to support ISED's Inclusive Innovation Agenda:

- 1) *Universal Access*—Digital Community Innovation Centres and the skills training they offer are available to anyone, free of charge, as part of life-long learning to keep pace with change in the digital economy. Unlike digital innovation hubs available within universities or developed in partnership with industry with closed user groups or memberships, the purpose of DCICs is to make digital skills accessible to the broadest cross-section of clients. Without broad-based access, the 'digital divide' that has characterized unequal access to broadband will be perpetuated as a digital divide of skills.
- 1) *Applied Learning*—Skills retention is highest and the training is most effectively leveraged when creative output can be disseminated and shared, demonstrating proof of concept and leading to further rounds of learning.
- 2) *Flexibility to Adapt*—Skills training is offered by entrenched community organizations that are decentralized and can respond dynamically to community need over time. The digital economy is not a static set of conditions, but will continue to evolve. Canadians today might need training in web design, how to leverage social media networks, and coding. Tomorrow, they may need to deploy virtual reality tools and artificial intelligence.

The DCIC model meets these requirements.

Social Entrepreneurship: How DCICs Drive Innovation

ISED's Innovation Agenda consultation asked:

What more can be done to cement Canada's place as a leader in social entrepreneurship?

The question recognized that social factors play a role in entrepreneurship and in our success as innovators.

An awareness has increased in recent years regarding the social and economic value of bringing together people from different backgrounds to drive *innovation*. Many high-tech firms design facilities that deliberately mix technicians with creative personnel in order to innovate solutions to problems.

A recent *Harvard Business Review* captures the importance to innovation of open environments that mix user groups:

In Silicon Valley the tight correlation between personal interactions, performance, and innovation is an article of faith... Google's new campus is designed to maximize chance encounters. Facebook will soon put several thousand of its employees into a single mile-long room. Yahoo notoriously revoked mobile work privileges because, as the chief of human resources explained, "some of the best decisions and insights come from hallway and cafeteria discussions." And Samsung recently unveiled plans for a new U.S. headquarters, designed in stark contrast to its traditionally hierarchical culture. Vast outdoor areas sandwiched between floors will lure workers into public spaces, where Samsung's executives hope that engineers and salespeople will actually mingle. "The most creative ideas aren't going to come while sitting in front of your monitor," says Scott Birnbaum, a vice president of Samsung Semiconductor. The new building "is really designed to spark not just collaboration but that innovation you see when people collide."⁸

In the submission to the "Canadian Content in a Digital world" consultation conducted by the Department of Canadian Heritage, the Canadian Federation of Library Associations recommended that as a nation we:

"Invest in public library programs to help Canadians learn how to develop content in a digital world. These programs should be targeted with a

⁸ <https://hbr.org/2014/10/workspaces-that-move-people>

particularly emphasis on connecting youth with employment opportunities”

... and that ...

[Libraries] are the best places to channel the energy of youth with mentorship and education.

Similarly ISED's YIP discussion document notes at page 9:

“Mentorship is one of the most valuable and effective opportunities to develop talent and important soft skills. Coupled with peer-supported learning and mentorship, work-integrated learning can enhance skills development.”

DCICs enable youths to develop the leadership, networking, and team-building skills that can be lacking in many job-training situations, where they may be given routine repetitive tasks to perform, commensurate with their level of experience.

Because DCICs facilitate all community members to apply skills to creative projects of their own choosing, in teams with others, the opportunity to develop skills is unparalleled. Mentoring happens automatically, as community members learn from each other, drawing on one another's strengths to contribute to media projects that have immediate impact in the community.

Mentorship is the cornerstone of community media, whose goal is to generate the possibility and space for dialogue, by bringing together actors from different sides of issues and different walks of life. Young volunteers often come through the doors without specific 'messages' or entrepreneurial ideas to act upon, but simply to learn. In the process of working on projects led by senior producers, they develop their own voices and ideas, and evolve into the next season's producers and leaders. It's the open environment of seeing other unique individuals leverage media and technology for their purposes that teach us to leverage it for our own. Creativity begets creativity; media literacy begets media literacy.

The community media practitioners and users surveyed as part of the research done by CACTUS and Carleton's School of Journalism and Communications cited the Google-like effect in the community media organizations they knew:

“bring people from diverse, divergent backgrounds together.”

“provide connections between non media groups in a community. In their efforts to highlight their story, they are also becoming aware of other similar or synergistic groups in their own community.”

“It is a major reason that the community feels like it is a community. It provides awareness of what neighbours are doing, thinking, and planning. It can also open the doors to community involvement — which might be volunteering, competing in sports, running for office or supporting candidates, attending public meeting, becoming aware of available services.”

“Hearing voices I would never meet that are so close to my home. We share a space, it’s good to hear how we are all using it, for better or worse. Communication is the most important piece of living together.”

“Creating networks locally”

“Strong community encouragement, education, stability within the communities

“Provide a place for like-minded people to convene.”

“Mentoring local groups on effective storytelling and how to shape message, following up long term to support their mission statements, training in media skills and communication techniques, creating important archives of communities and people who make a difference in their communities, archives of community and politically active citizens over their careers, documenting community change - good and bad.”

In a panel on Youth Media that was held as a part of the research process, Tara Mahoney of Gen Why Media in Vancouver captured the importance of this kind of learning environment for youth⁹:

“I think the community media piece is really essential... The idea for Gen Why Media really came out of a community centre and being inspired by other people that were there and seeing what they were doing. I don’t know if I would have done this if I hadn’t had that space and that inspiration”.¹⁰

⁹ The conference was hosted by Carleton's School of Journalism and Communications, and was held from November 21 – 23rd. 2015. The web site for the conference, including video coverage of sessions can be found at www.ComMediaConverge.ca. The policy proposal that resulted from the pre-conference research and the conference itself are appended as Appendix C.

¹⁰ For the video stream of the panel and Ms. Mahoney's comment, see <http://www.commediaconverge.ca/node/321>, starting at 55:30.

Therefore we understand the term “social entrepreneurialism” in Canada's Inclusive Innovation Agenda as referring to the structures within which Canadians learn new skills, and how those structures mobilize results.

Many of the participants in the Inclusive Innovation Agenda roundtables similarly recognized the need for social entrepreneurship and lifelong learning to support Canada's innovation agenda. A few examples:

***Training:** Increase digital literacy in early education by treating coding as Canada's 'third official language' to increase the digital literacy of Canadians... (Kitchener)*

***Indigenous communities:** Improve access to broadband and innovative educational programs to enable increased participation of individual communities. Encourage partnerships between civil society and First Nations communities to try new education paradigms.*

***Talent:** Developing, attracting and retaining it, is central to Canada's success now and in the future.*

Set up networks that support centres of excellence and strength, and build creative society around that.

Consider innovation in all realms, not just technology and industry: but also health, social sector and civil society, as this will have enduring benefits.

Life-long learning is a growing trend. Education institutions need to adapt to both an increasingly older intake cohort and offering education / skills upgrading throughout a working person's life. (Kelowna)

Need for innovation within educational institutions; engaging youth and indigenous populations; develop programs that foster idea generation; leverage the potential of the Silver Economy

***Youth Education:** Need a new educational paradigm to promote skills development and innovation. Leverage existing creativity in youth and implement programs to boost digital literacy through the development of coding skills, computer literacy, and other applied hands-on-learning the traditional education system lacks. . Need more safe places such as MakerSpaces to help generate and implement new ideas within and outside of academia. (Halifax)*

Digital Community Innovation Centres are the most cost-effective model to drive the digital economy, because:

- 1) They leverage existing infrastructure.
- 1) They leverage peer-to-peer learning relationships and volunteerism. Ongoing relationships and mentorships evolve naturally, as community actors and organizations work together to achieve common outcomes.

How Could Digital Community Innovation Centres Be Implemented?

Leverage Existing Infrastructure

DCICs would be hosted by/evolve from:

- public libraries, which are widely distributed and supported by municipalities.
- Community media organizations:
 - community radio and TV stations (~250 members of CACTUS, the Federation des televisions communautaires autonomes du Quebec, the NCRA, the ARC du Quebec, and the ARC du Canada)
 - nascent community new media organizations including:
 - > gaming groups (Dames Making Games, the Hand-Eye Society, Pixelles, the Mount Royal Game Society)
 - > web sites that train citizen journalists (The Media Co-op, rabble.ca)
- Media arts organizations such as the ~100 members of the Independent Media Arts Alliance (IMAA), supported by the Canada Council for the Arts.
- Community centres, where none of the above exist

Collaborate Among Ministries

Just as Canada's original community media policies were developed by and impacted the mandates of 8 government ministries, DCICs advance the mandates of at least 8 ministries in today's Canada. Our proposal—like Challenge for Change—is that each department contribute to a “Community-Access Media Fund” to provide funding to DCICs. *Each department need fund only a portion of the total, while meeting its own department objectives:*

Ministry	Mandate	Suggested Contribution
ISED	skills training	\$15 million
Employment, Workforce Development and Labour	skills training	\$15 million
Heritage	local reflection	\$15 million
Infrastructure and	community infrastructure,	\$15 million

Communities	like public libraries	
Democratic Institutions	(community media's and public libraries' roles in supporting freedom of speech and public discourse)	\$15 million
Public Safety and Emergency Preparedness	Distribution of emergency messaging	\$15 million
Indigenous and Northern Affairs Canada	Need for in-the-language media	\$15 million
Ministry of Families, Children and Social Development	Need to disseminate program information at the community level	\$10 million
Total:		\$125 million

ISED: Focus on New Media: Web Design, Coding, and Game development

We propose that ISED focus on facilities and personnel costs to:

	Item	Cost
1	Equip 250 DCICs with new media hacklabs ¹¹ containing 5-10 computers.	\$2.5 million
2	Support digital skills training through residency programs for coders, web-developers, and digital media content creators (one full-time developer in residence for each of 250 DCICs) ¹²	\$12.5 million
	Total	\$15 million

Under the CAP and YIP, public library associations were expected to administer the funding provincially, including reporting and accountability functions. They were not resourced for these purposes however, and found it difficult to provide the degree of reporting the Federal government required. We believe separate fund administration will be more efficient and achieve superior reporting and

¹¹ See budget items shown in blue in budgets for small, medium and large communities shown in Appendix A.

¹² In the budgets in Appendix A, ISED would be paying for one employee at each type of facility (small, medium, large).

outcomes:

- The Community Access Media Fund (CAMF) would be a national fund that would ensure equitable delivery of services in all parts of the country, with a focus on underserved communities.
- CAMF fund would ensure reporting and accountability for grant amounts to all participating ministries.
- CAMF fund would establish local, regional and national targets (e.g. hours of training, qualifications reached, content produced and disseminated) that meet the needs of each ministry.

For more about our vision for how the Community-Access Media Fund could work and the full cost to fund 250 DCICs that would be accessible to 90% of Canadians, see Appendix A, below.

The proposal is scalable; whatever budget ISED has available for digital skills training (former YIP budgets or other sources) would be deployed equitably by region; for example, if current sources do not cover a coder-in-residence for every DCIC that could host one (whether public library or community media organization), one coder could rotate among DCICs in a region.

Appendix B provides an example of this approach, in which the goal would be to reach *as many communities* as possible with *some* coding and digital media training, rather than concentrating resources at fully functional DCICs. For example, while \$15 million in the table above could support 250 full-time coder-developers and fully equipped hacklabs at 250 DCICs, each serving a population of 10,000 or more, that same money could be deployed to support 150 full-time coders who travel among up to 5000 communities as small as 500 people, spending a half day at each over a three-month period.

Contributions by all participating ministries is similarly scalable, and the plan does not fall apart if particular ministries do not participate. Which ministries participate and to what extent affects the number of fully functional DCICs and the breadth and types of programming possible at each. Since DCICs will evolve from and be hosted by existing entities, every dollar contributed to CAMF will result in incremental progress toward our national community media strategy and the long-term goal of achieving 250 fully functional DCICs.

The Role of CACTUS and Public Library Associations

The role of CACTUS and public library associations in this proposal could include:

- Providing administrative support, including staff, advisors, and management personnel to implement this program.
- Publicizing the availability of funding for community organizations to upgrade equipment and personnel to fully functional DCICs.
- Supporting community organizations to prepare funding applications; for example, assistance in preparing budgets, equipment lists, design, engineering.
- Developing and distributing training materials to prevent duplication of effort and to keep program costs down.
- Web site to share educational materials, DCIC news and progress.
- Content sharing and the development of archival standards.
- Participating on the CAMF board to assure the relevance of training, production targets and application procedures.
- Recruiting and engaging additional public-private partnerships into this model (e.g. media companies, municipalities, provinces, educational institutions, and non-profit funds).

Appendix A: More About CAMF

When CACTUS proposed the establishment of a Community-Access Media Fund to the CRTC as part of its 2016 review of its local and community TV policies, we proposed three principals to guide its operation:

Principle 1: Regional Equity; Focus on Underserved Communities

We propose that CAMF establish long-term targets to distribute funds evenly throughout the regions, with proportionately more in smaller communities since i) minimum staffing, equipment and facilities are necessary to operate in the smallest communities, and the sharing of common resources becomes more efficient in larger population centres, and ii) smaller communities are the ones where the digital divide is greatest, and alternatives (such as college courses) for addressing it are the least.

We developed sample budgets for DCICs in small, medium and large communities *assuming no existing infrastructure and that they would be starting from scratch*. The numbers of Canadian communities in each category ('small', 'medium', 'large' are derived from Statistics Canada)

Small Communities: (10,000 to 30,000), of which there are 85

Startup Costs	
Television	
Studio	\$60,000
Control room	\$160,000
Online edit suite	\$6,000
ENG kits (3)	\$18,000
Laptop editing consoles for loan (3)	\$1,500
Mobile (van with portable cameras)	\$50,000
Radio	
Studio and control room	\$30,000
Voiceover booth	\$2,000
On-location recording equipment	\$500
New Media Hacklab (offline audio and video editing, Internet, game design: 5 computers)	\$10,000.00
Office equipment and furniture	\$2,000
Transmission equipment	\$20,000-100,000
Headend/servers/web hosting	\$30,000
Engineering consultancy	\$20,000
SubTotal	\$498,000.00
Yearly Operational Costs	
4-6 staff (manager, community outreach co-ordinators/trainers with different media specialties, technician)	\$250,000-\$500,000
Repairs (parts)	\$10,000
Materials (e.g. Recording materials, office supplies)	\$30,000
Rent or mortgage, building maintenance	\$25,000
Professional fees	\$3,000
Total	\$238,000-\$568,000

Medium-Sized Communities: (30,000 to 100,000 people) of which there are 32

Startup Costs	
Television	
Studio	\$60,000
Control room	\$160,000
Online edit suites (2)	\$12,000
ENG kits (5)	\$30,000
Laptop editing consoles for loan (5)	\$2,500
Mobile (van with ENG cameras)	\$50,000
Radio	
Studio and control room	\$30,000
Voiceover booth	\$2,000
On-location recording equipment	\$500
New Media Hacklab (offline audio and video editing, Internet, game design: 8 computers)	\$16,000.00
Office equipment and furniture	\$3,000.00
Transmission equipment	\$20,000 - 100,000
Headend/servers	\$30,000
Engineering consultancy	\$20,000
SubTotal	\$536,000.00
Yearly Operational Costs	
6-8 staff (manager, community outreach co-ordinators/trainers with different media specialties, technician)	\$350,000-\$660,000
Repairs (parts)	\$10,000
Materials (e.g. Recording materials, office supplies)	\$30,000
Rent or mortgage, building maintenance	\$25,000
Professional fees	\$3,000
Total	\$388,000-\$728,000

Large Communities (Serving up to 500,000; Multiple Facilities in Communities with Populations >500,000; i.e. Public-library hub structure) of which there are 53

Startup Costs	
Television	
Studio(s)	\$100,000
Control room(s)	\$200,000
Online edit suites (3)	\$18,000
ENG kits (6)	\$36,000
Laptop editing consoles for loan (6)	\$3,000
Mobile (specialized vehicle, committed equipment)	\$75,000
Radio	
Control room and studio	\$30,000
Voiceover booth	\$2,000
On-location recording equipment	\$500
New Media Hacklab (10 computers, modem, network)	\$20,000.00
Office equipment and furniture	\$6,000
Transmission equipment	\$20,000 - 100,000
Headend/servers	\$30,000
Engineering Consultancy	\$20,000
Total	\$635,500.00
Yearly Operational Costs	
8-11 staff (manager, community outreach co-ordinator/trainer(s), technician)	\$450,000-900,000
Repairs (not including labour)	\$20,000
Materials (e.g. Recording materials, office supplies)	\$40,000
Rent or mortgage, building maintenance	\$50,000
Professional fees	\$3,000
Total	\$483,000-1,113,000

Based on Statistics Canada population analyses, we calculated that enhancing the infrastructure and service offerings of 250 existing institutions (libraries or

community media organizations, or both working together) would be sufficient to make a full suite of digital skills training and content production tools available to 90% of Canadians. These include the (85+ 32 + 58 = 175) small, medium and large communities for which budgets are provided above, in addition to 75 regional centres to serve rural areas with populations under 10,000 people.

Principle 2: Build on Existing Infrastructure

It would not be necessary to provide either entire capital start-up or operational budgets, as much of the necessary infrastructure exists already at public libraries and community media organizations. CAMF would provide funding to 'top up' what communities can raise themselves (or infrastructure they already have) to achieve the minimum budgets detailed above, which would enable them to deliver a full multimedia skills training and production mandate.

Principle 3: Granting Depends on Fulfilling Measurable Community Impacts

Grantee organizations would commit to measurable skills training and production targets established through consultation between communities and the participating government ministries, and would submit yearly reports. CAMF would carry out yearly performance evaluations for the program as a whole, which would be shared with participating government ministries.

As part of CACTUS' submission to the CRTC's recent Local and Community TV Policy Review, we provided sample criteria regarding training, production and community engagement that might be used for evaluation, according to community size. These are provided below. (The outcomes attributable to contributions by ISED are shown in **blue**.)

Target	Small	Medium	Large
Output:			
TV	Meets or exceeds regulatory minima.		
	10 hours original content per week	20 hours original content per week.	40 hours original content per week.
	Centres shall report amount and types of local news and event coverage as a percentage of overall content distributed.		
Radio	Meets or exceeds regulatory minima.		
Locally reflective games	2 per month	3 per month	1 per week
# web pages	5	10	20
Training:	(averaging 6 participants per workshop; target of 1/3 held outside production facility in community; e.g. schools, seniors and community centres)		
TV	10 (one full cycle of topics) per year	20 (two full cycles of topics per year)	30 (three full cycles of topics per year)
Radio	1 per month	2 per month	2 per month
Gaming	2 per month	3 per month	1 per week
Web skills	1 per month	2 per month	2 per month

Community Engagement			
# regular volunteer contributors	40	80	150
Average # organizations profiled or involved	2 per week	4 per week	8 per week
Open Governance programming	Coverage of municipal council or equivalent body (at least once per month) and election	Coverage of municipal council or equivalent body at least bi-weekly and election coverage	Coverage of municipal council or equivalent bodies weekly, election coverage, and

	coverage		coverage at least one other town-hall, school board trustee meeting or equivalent per month
Development Target	Each Community Media Centre should meet self-defined community developed target by year end, whether a training target, a target to include previously marginalized groups, to stimulate dialogue about particular social or economic challenges, or to showcase or capture particular events or history.		
Interactive programming	Community Media Centres shall document efforts to involve community members directly in programming via interactive technologies and methodologies (e.g. phone-ins, text messaging, live uploads, studio audiences)		
Archiving	An archiving strategy must be established in partnership with the public library over the course of the trial; consultancy and co-ordinator to be provided through trial administrator working with archiving and library consultant.		
Audience (to be established by independent survey methodology)	50% weekly reach	25% weekly reach	10% weekly reach ¹³

¹³ The weekly reach (larger percentage in smaller communities versus smaller percentage in large communities) reflects the different mandate of community media in small communities where there may be few other sources of local information, and the focus tends to be generalist. In urban areas, by contrast, community media tends to serve niche groups; while generalist news is provided by public and private sector broadcasters.

Appendix B:

“Canada Codes”

This appendix describes an alternate approach to offering coding training. Rather than offering training by one coder in full-time residence at each of 250 DCICs (each serving a population of 10,000 or more), coders-in-residence could travel to as many as 5000 communities as small as 500 people, spending a half-day at each per week.

Pros: Reach more remote communities and fund a minimum of technical equipment in more places.

Cons: Greater travel expenses (fewer coders; more money on travel) and less concentration of digital media technology at regional media centres that can generate a greater variety and sophistication of output.

The proposal that follows describes the *maximum* number of coding workshops (size, focus, and clientele) that could be offered by travelling coders-in-residence hosted by community media organizations and public libraries. The strength of these organizations is their ability to work with clients:

- 1) at the community level (without having to leave to go to larger centres, which is not an option for many of the target clientele)
- 2) to address their need for life-long learning and skills to participate in the digital economy

Assumptions:

Category 1: Why should public libraries and community media organizations co-ordinate coding training?

- 1) Full-time colleges and universities are best equipped for teaching diploma and degree courses in computer science and video gaming.
- 2) Primary and secondary schools are best equipped for teaching coding to K-12, although libraries could partner with schools under this proposal if coding skills are lacking among school teachers in host communities.

- 3) Public libraries and community media organizations are the best positioned to introduce programmatic thinking and digital media skills to non-programming professionals as part of life-long learning, including seniors, youth, the unemployed, working professionals wishing to develop additional skill sets, and so on.
- 4) Public libraries and community media organizations can offer coding and digital media skills in communities where there are no colleges or other educational institutions offering such training.
- 5) Public libraries and community media organizations can offer coding and digital media skills in the context of the specific and immediate communication needs of their communities, which stimulates interest in the training and demonstrates proof of concept, while improving the host community's long-term communications infrastructure and capacity.

Facts:

- There are:
 - 3000 communities in Canada with more than 500 people
 - 2000 communities with more than 1000 people
 - 170 communities with more than 10,000 people¹⁴.
- There are 600 Aboriginal bands distributed among 3100 reserves. 200 reserves have over 500 people¹⁵.
- 85% of Aboriginal reserves do not have a public library or community media organization.
- This proposal (if fully funded) would bring coding skills to all communities in Canada having more than 500 people, including all Aboriginal communities with more than 500 people. The program could focus on even smaller communities.

¹⁴ Statistics Canada.

¹⁵ Statistics Canada.

Goal:

The intent of this proposal is to enable sustainable skills development in the maximum number of communities, which can be continued by host institution staff after the program has finished, through:

- A “train-the-trainer” approach, whereby public library and community media staff at hosting organizations participate in training along with community members, so that they can repeat coding courses after the coder-in-residence has left.
- Providing hosting institutions with software or hardware they need to support coding projects and learning after the coder-in-residence leaves. These could include laptops, computer workstations, and image capture devices (still and video cameras, scanners, graphics and animation software)
- The “coders-in-residence” themselves are recent computer science graduates, who gain both work experience and experience adapting their skills to a variety of settings.

The goal is to efficiently deliver coding skills to Canadians and to enable local institutions with the means to continue to support community members in digital media literacy life-long learning through staff training and infrastructure upgrades.

Types of Coding Courses to Be Offered

We propose three types of training in community settings:

A) One to three-hour “Intro to Coding”: 12 students

Offered: days, evenings, or weekends depending on client need

Content: Tutorial (developed by CACTUS and its partners) that introduces programmatic thinking and structure using drag-and-drop freely available tools such as MIT's Scratch (a spatial game development tool) and Twine (an interactive narrative tool). Students learn to import local assets (photos, video, maps, data) and to apply the coding tool to a real-life problem, developed in association with host institution staff.

For example, the floor plan of the host library or community media centre might be used as the basis for a 'game' that simulates fire exit planning. To 'win' the game, players must design exit routes that enable a maximum number of clients to be evacuated within a given time. All communities would do the same tutorial, but the unique floor plan of the host institution could be used to demonstrate local adaptation.

B) Three-day Intensive Introduction to Coding: 12 students

Offered: in three blocks of 2 hours, 7 hours, 7 hours during work hours for seniors, students, the unemployed, not-for-profits, or small businesses, or on weekends (Friday night-Saturday, Sunday) for working adults seeking new skills outside the work environment

Content: Client groups bring specific project ideas to work on, including source graphic materials or data to incorporate into the project. For example, a not-for-profit sporting association might bring the idea for a game application to plan a cross-country skill trail and warm-up facilities. A small business might design an interactive tool for ordering products through its web site. Clients learn programmatic thinking using freely available drag-and-drop tools such as Scratch and Twine.

C) 10-week Intensive : 12 students

Offered: 3 hours per week for 10 weeks

Content: Students work in teams to develop projects with direct application in the community, as in the three-day intensive. Clientele could include not-for-profits, individuals, and small businesses who develop the project idea they want to work on during weeks 1 and 2, and complete during the 10 weeks of the course.

Software and hardware are made available either on-site or for loan so that students can work on projects between weekly teaching sessions.

Students learn not only how to use freely available interactive coding tools, but also some of what's 'under the hood' in a programming language, including an introduction to syntax.

Contract Schedule and # Communities Served by Coders in Residence:

The one-year contract for each coder in residence would unfold as follows:

Week	Activity
1	“Train-the-Trainer” Course: Each coder receives a one-week orientation offered by CACTUS and its partners at a regional centre, to provide them with the curricula for the three courses, and the methodology for engaging clients via real-life projects in the community.
Cycle 1 of 4	
2	Develop local project ideas and adapt tutorials for local clientele with input from the staff of 4-8 host institutions ¹⁶ .
3	“Intro to Coding” workshops at the 4-8 host institutions. These

¹⁶ The number of host institutions to be served by each coder-in-residence depends on how far apart they are. In an urban setting or county with many small village, where there is less than an hour travel time between host institutions, the coder could serve up to 8 locations per week, spending a half day at each (with one day for preparation). In a more remote or rural setting with up to a half-day of travel between hosting institutions, a coder might only be able to serve 4, or one per day, allowing a half day for travel to each.

	workshops are either identical and offered in different host communities (e.g. a small public library or community media organization in 4-8 different communities), or—if the host institutions assigned to a coder are all urban; for example, 8 local libraries in Hamilton—the coder might adapt the standard tutorial for different clientele at different locations (e.g. Seniors at one location, the unemployed at another, working professionals at another, not-for-profits, small businesses and so on). To be determined during the project planning phase by CACTUS and the public library associations.
4	2 three-day intensive courses in two communities
5 through 14	<ul style="list-style-type: none"> • 10-week intensive courses taught in 4-8 communities. • 5 three-day intensive courses, offered every second weekend. <p>(Coder gets every 2nd weekend and every Monday off.)</p>
Cycle 2: Weeks 15 through 27 (same as cycle 1; 4-8 new communities)	
Cycle 3: Weeks 28 through 40 (same as cycle 1; 4-8 new communities)	
Cycle 4: Weeks 41 through 52 (same as cycle 1; 4-8 new communities)	

There are four cycles during the one-year contract, offering in total:

Course	Total # Locations	Total # Students
Intro to Coding	4 to 8 locations x 4 cycles = 16 to 32 locations	x 12 students/class = between 172 and 344 students
3-day Intensive	6 to 8 locations x 4 cycles = 24 to 32 locations	x 12 students/class = between 288 and 344 students
10-week Intensive	4 to 8 locations x 4 cycles = 16 to 32 locations	x 12 students/class = between 172 and 344 students
Total:	= between 56 and 96 locations/coder/year	= between 632 and 1032 students/coder/year

Outcomes:

For Students in Host Communities:

- One third gain an understanding of both the basics of programming principles, and how to download and use free programming tools that can be used as a tool of local communication.
- One third gain a basic understanding of programming principals and how to download and use free tools that can be used as tools of local communication. They also complete a local project with direct application in the community, forming the nucleus of a working group for future projects.
- One third gain not only an understanding of how to collect local assets (photos, data, maps) and incorporate them into an interactive game or project that has an immediate application in the community that they could use as a 'demo' for a job search or to pursue further education, they learn what's 'under the hood' of a programming language.

For Host Institutions:

- Host institution staff will learn along with students while the coder is 'in residence', so that they could offer the same courses to community members when the coder-in-residence program is over.
- Host institutions will benefit from additional equipment to offer the courses. While institutions in larger centres might not need anything (since most of the software tools are free and require ordinary computers to run them), additional laptops, computers, or image collection devices such as cameras may be critical for remote communities.
- Host public libraries (including maker spaces) will learn how to teach technological tools while building community content and community media processes and distribution strategies.

For Host Communities:

- Free training for staff person or board member, in addition to 36 community members in the three coding courses (12, 12, 12 in the three different course lengths)

Hardware and software (two units) to keep in the community to continue coding and game production when course is over.

- Assistance with rudimentary web site design (if community has none) to disseminate games designed during courses.
- Completed projects can be used in community as a tool of dialog about current issues.
- Understanding of how community media can be leveraged as a tool of dialog moving forward.
- For Aboriginal communities that have no public library or community media organization, CACTUS and its partners will identify community centres or other meeting spaces that can be used to deliver the program, thereby establishing the beginnings of a library-community media resource centre.

For Coders-in-Residence:

- The coders-in-residence will be selected from among recent computer science and video game graduates, who will gain invaluable hands-on job experience applying their skills to a variety of real-life problems, with a broad range of real-life clients.

Cost

This proposal assumes an average per-coder cost of \$100,000/year, as follows:

Item	Cost
Coder Salary	\$50,000.00
Equipment for 16-32 locations	
- 12 mobile laptops and video projector that travel with coder	\$6,000.00
- 2 laptops or towers, and imaging software or hardware to permanently equip locations with no computer infrastructure	\$10,000 - \$30,000 ¹⁷
Travel	
- to attend project orientation within province	\$1,000.00
- to travel to host facilities on circuit:	\$10,000- \$30,000 ¹⁸
Total	\$100,000.00

¹⁷ Well equipped public libraries or community media organizations may need no additional infrastructure. Remote communities may need significant infrastructure; to be determined through application process.

¹⁸ Travel for library branches in a big city may be as low as a gas allowance (under \$3000). Travel to remote or fly-in communities could go as high as \$50,000; there's a tipping point at which it's more cost-effective to pay for a dedicated coder-in-residence or community animator to stay on site in remote communities for a full quarter, rather than to serve multiple locations. To be determined through application process.

This proposal is scalable; for examples:

# Locations	# Canadians Exposed to Coding (1/3 intro, 1/3 medium intensive 1/3 full course)	Community Size Served ¹⁹	# Coders in Residence	Cost
16-32	632 to 1032	500,000 and up	1	\$100,000
160-320	6022 to 10,720	10,000 and up	10	\$1,000,000
800-1600	30,110 to 53,600	2000 and up	50	\$5,000,000
2400-4800	90,330 to 160,800	500 and up	150	\$15,000,000

Commitment by the Host Institution:

- Host institutions would commit one staff person or board member (in the case of public libraries, community media organizations, or bands that have no staff) to participate in each course.
- Host institution commits classroom or other space with 12 desks and chairs to hold courses.
- Identify accommodation or billet for coders-in-residence in remote communities, and transportation to and from accommodation to community resource centre where training will take place if no public transportation available.

¹⁹ This analysis assumes fewer coders would serve largest communities first to maximize reach to Canadians; but smaller communities could be preferentially targetted; perhaps wherever there are no community colleges, universities or other institutions that teach coding and digital media.

Appendix C: CACTUS Members

CACTUS Members that Produce Television Content for Broadcast:

Community Television License Holders

(content available OTA, on cable, Bell ExpressVu, the Internet)

CHET-TV, Dawson Creek and Chetwynd, BC (also produces radio)

Valemount Community TV, Valemount, BC

Neepawa Community Access TV, Neepawa, MB

Hay River TV Society, Hay River, NWT

St. Andrews Community TV, NB

Telile Community TV, NS

Unlicensed Station

Wiky TV5 (Firstel), Wikwemikong, ON

TVCs

(Community Television Corporations that distribute content on BDU community channels

and on the Internet)

newwest.tv, New Westminister, BC

Pasifika TV, Victoria

TriCities TV, Port Coquitlam

Carnegie TV, Vancouver

Access TV, Vancouver

Midisland TV Society, Nanaimo

Metro Vancouver

NUTV, Calgary

CSUR LaTele, Vaudreuil-Soulanges

ICTV Victoria

Regent Park Focus Media Arts Centre, Toronto (also producers radio and games)

Television communautaire de Frontenac

Appendix D:
Policy Proposal to Support Community Media in the Digital Environment