Submission Author: **CHRC**
Discussion theme being addressed: **Building Digital Skills**
Title: **Building Digital Skills in the Cultural Sector**
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## 1. Stakeholder Introduction

### 1.1 The Mandate and Mission of CHRC

The Cultural Human Resources Council (CHRC) was established in1994. Its mandate is “To strengthen the Canadian cultural workforce by providing leadership and innovative solutions to human resource issues and to better the HR environment within the cultural sector.”

The CHRC addresses HR issues in 8 cultural industries / sub-sectors within the cultural sector, including broadcasting, film and television production, digital media, music and sound recording, writing and publishing (books and magazines), live performing arts, visual arts and crafts, and heritage.

The CHRC is a key stakeholder in the implementation of the skills part of a digital economy strategy (DES). It is a national bridge across provinces providing a national picture of skills issues in the cultural sector, and works with provincial and territorial organizations with similar mandates. CHRC generally facilitates the transfer of knowledge among stakeholders on a national level. The CHRC commissions or facilitates the development of many tools that are aimed at strengthening skills in the cultural sector. These tools include:

- Identification of trends, needs and gaps in specific cultural sub-sectors and across the sector;
- National strategies to address training gaps
- Competency analyses of specific occupations and functions; and
- Course content developed by industry for use by training providers in curriculum and workshops.

### 1.2 Rationale for CHRC’s Participation in the National Consultation Process

The government consultative paper frames “building digital skills” around addressing the skills shortages in the ICT sector. The main position of CHRC in this submission is that the DES should focus equally on building digital skills in the cultural sector, not just the skills in the ICT sector. While every sector will be affected by digital technologies, the Internet is a disruptive technology for the cultural sector like no other. Therefore, learning digital skills is crucial for the cultural sector like no other. It is the cultural sector which is at the same time a segment of the Canadian economy highly affected by the advent of the digital economy (e.g. changing business models, new skills requirements), and the segment most likely to generate Canada’s “content advantage.” Indeed, digital skills development in the cultural sector will have a profound impact on Canada’s digital advantage as a whole.

It is not just a question of the cultural sector bringing in new computer sciences students to join cultural workers – although in many cases a computer science background for the cultural worker is an excellent foundation. Rather, it is the development of computer literacy and digital expertise among cultural workers, so that they can integrate the ICT skills into their particular occupation. In fact, a critical part of digital expertise is continuous learning about the emerging digital business environment, so that cultural sector companies and workers can adapt to and adopt the new opportunities for earning revenues from the digital world, e.g. creating for new platforms and for marketing and distribution via the web.

In sum more cultural workers are needed who have the unique integration of technical, creative and business/ entrepreneurial skills to operate successfully in a digital environment. The CHRC has extensive background in the area of skills development in the cultural sector, and understands the enormity of the digital challenge to the sector’s 662,000 workers.

### 1.3 Addressing the discussion questions for building digital skills

This submission addresses the following discussion questions as posed in the discussion paper:

- What do you see as the most critical challenges in skills development for a digital economy?
- What is the best way to address these challenges?
- What can we do to ensure that labour market entrants have digital skills?

- What can we do to ensure the current workforce gets the continuous up-skilling required to remain competitive in the digital economy? Are different tactics required for SMEs versus large enterprises?

While we consider digital literacy of critical importance as well, that is not what we want to address. Rather, our emphasis is on the existing and new entrants to the cultural workforce. We address these questions from the perspective of building digital skills in the cultural sector, not ICT skills for the economy as a whole.

The consultation paper refers to “Canada’s digital content advantage,” and we presume this means both cultural content creators and digital content creation by anyone accessing the Internet. Whereas the latter group encompasses any and all content created by digital means and/or for digital consumption (from search engines to social media to blogging), the cultural content creator is a skilled professional who generates intellectual property of some value. It is not simply the product of an amateur digital content creator.

These cultural workers have a particular relationship to digital technology – and the related digital skills – that sits at the core of any digital economy. Namely, it is *this* sector that provides the content (from music in the 1990s, to video today) that has created the animus for the expansion of digital infrastructure.

In fact, “creativity” by itself is a skill set that transcends the cultural sector and the ICT sector for that matter. The need for creativity is widespread and is key to innovation in every industrial and public service sector. Therefore, the more effective training is in the cultural sector, the greater potential for spin-off of the cultural sector’s creativity to other sectors.

### 1.4 Building on the Strengths of the Cultural Sector

The **economic contribution** of the cultural sector was $46 billion GDP in 2007 (the latest year for which there are results). The indirect and induced economic effects led to a more than doubling of this figure to $84.6 billion in 2007.[1] Government investment in the cultural sector has created many success stories, and has provided a solid base to grow the cultural sector within the Canadian digital economy – as both an economic and cultural engine.

While the “official” figure of about $2.1 billion (in 2006) is cited to indicate the value of Canada’s **cultural exports**, that figure underestimates their true export value.[2] For example, between 1999 and 2008 there was an average of $1.7 billion in location production shot in Canada,[3] which is not counted as “exports” even though like the attraction of foreign tourists it should be so counted.

The **attraction of foreign investment** in Canadian content production, for example as a result of international film and TV co-productions, is also important in Canada’s economic trading calculus, even though not counted as “exports”. The true measure of the value of the cultural sector in a global trading context shows the potential for taking advantage of the growing global trade in IP that is being stimulated by the Internet.

Canada has produced very successful **cultural entrepreneurs** who are particularly adept at stitching together the financial wherewithal to create, produce, and showcase cultural products. The cultural sector has built global brands like the National Film Board and the Cirque du Soleil, and many individual artists have made it to the global “A list” in feature films, television, music and the performing and visual arts. Film and TV producers, games developers, book and magazine publishers, music recording companies and artists, art dealers and crafts cooperatives, commercial theatres, Internet content pioneers, and impresarios of all kinds have all learned entrepreneurial skills that are absolutely vital to growth and global expansion.

These Canadian cultural entrepreneurs clearly operate in the international arena, and their success bodes well for future adaptation to a digital environment. To illustrate, the following examples document achievements to date:

- **Book publishing:** Canadian publishers have marketed Canadian titles abroad for years, and the industry is jumping into the e-books fray through its own solution.
    - **Harlequin Enterprises** is a Toronto-based publishing company specializing in romance fiction. The company publishes more than 120 titles per year in 29 languages. In 2006, 96% of Harlequin’s revenues were generated outside of Canada. The firm has also been a leader in the adoption of

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[1] Conference Board of Canada, “Valuing Culture: Measuring and Understanding Canada’s Creative Economy,” August 2008, pg 2.
[2] Ibid, pg 48.
[3] CFTPA, “09 Profile: An Economic Report on the Canadian Film and Television Production Industry,” Prepared by Nordicity, 2009, pg 80.

eBooks and electronic book distribution through its websites where it directly distributes both physical and electronic books.

  - Through the **Kobo** device, the book retailer ChaptersIndigo has entered the international competition for e-reader supremacy. Their offering (Kobo) is coupled with a desktop application and an iPhone/iPad application – and is sold internationally through the Borders brand. Indigo states that 17% of its current sales come from e-books, and that is expected keep growing.
  - **Anansi,** a noted Canadian book publisher, co-sponsors the prestigious Massey Lectures, and publishes the books that accompany the lectures. In 2008, the series exploded when Anansi published *Payback: Debt and the Shadow Side of Wealth*, the companion book to Margaret Atwood's lecture series on debt. Leveraging global economic crisis, Anansi retained the US distribution rights (as it does for the entire Massey series) and shrewdly generated blanket media coverage across North America - abetted by Atwood's popular Twitter feed.

- **Film and TV production:** Canadian producers were pioneers in co-production and are well known as the bridge between European and American producers and broadcasters. Apart from selling shows and films abroad, Canadian producers are putting together larger budget international co-productions involving complex financing from several sources, cross-cultural production, and international distribution.
  - **Canwest Global** along with producer/distributor **EI Entertainment** is currently involved with three international co-production series, all with international distribution lined up. Two of them are:
    - **Rookie Blue** is joint venture between Canwest and ABC, and was produced by E1. The series premier (also released on Global in Canada) drew an audience of 7.253 million viewers in the US and an audience share in the 18-49 category of 2.0/6. The premier would become the most successful scripted summer debut in the US in over a year.
    - **Haven** is a supernatural drama television series based on the Stephen King novel *The Colorado Kid*. Again, it was produced by Toronto's E1 working with Mr. King. The series will be the first property to be produced for NBC/Universal's Syfy Pay channels around the globe – and airing in Canada on Canwest owned Showcase.
  - **Degrassi: The Next Generation** is a teen comedy series produced by **Epitome Pictures** and is the fourth fictional series based on the *Degrassi* Franchise that is now shooting its 10th season. A critical success, *Degrassi: The Next Generation* has often received favourable reviews from several international press outlets (e.g. *The New York Times*, *Entertainment Weekly*, etc.). In its initial years, it was frequently the most watched domestic drama series in Canada, and one of the highest-rated shows on TeenNick in the United States.
- **Magazines:** Canadian magazines are typically domestic in nature, but their new web presences are attracting readership from around the world:
  - The **Digital Newsstand** is the result of a partnership between Magazines Canada (an industry association) and Zinio, a digital magazine service with funding from the OMDC and Ontario Arts Council. The service provides online access to Canadian magazines in a single, easy to use location. In its first 9 months, the service signed up 153 magazines and sold more than 2100 subscriptions. ***Hockey News*** has sold 1500 back issues around the world, and ***SkyNews*** has had orders from 17 countries.
  - **CLB Media** is one of Canada's leading providers of information and marketing services to business professionals in a wide range of industry sectors. Its 26 titles range from *Canadian Lawyer* to *Electrical Business*. Over the past decade, CLB has greatly increased its investment in the online offerings of its array of business magazines response to customer demand.
- **Digital media:** This sub-sector is comprised of the games industry and other interactive content development - on web-based platforms or as on-line extensions of more traditional media. Like the high tech sector, games developers aim for the international market given that the Canadian is too small to support most games products. In fact, a major feature in the Canadian games industry is that global games publishers have

established studios in Canada to tap into the Canadian games talent base. Success in the digital media industry is illustrated by the following examples:

  - Canada is home to major development studios of several international games publishers including **Electronic Arts** (in Burnaby, BC and Montreal) and **Ubisoft** (Montreal and recently Toronto). Together these two campuses account for more than 3600 jobs and have developed world-leading titles such as the *Need for Speed* and *FIFA* franchises (EA) and the *Assassin's Creed* series (Ubisoft) – helping Canada to attain the world's third largest game development industry.
  - Independently owned game development studios abound in Canada. For example, London (ON)'s **Digital *Extremes*** has carved out a niche in the development and licensing of physics engines that underpin many types of game. Digital Extremes has produced the award-winning Unreal franchise, which has sold more than 12 million units worldwide across various platforms.
  - Toronto-based **TransGaming Inc.** has specialized in the translation of games from one platform to another (e.g. from *XBOX 360* to *Nintendo Wii*). Recently, the company has facilitated the integration of games into next generation TV sets through its GameTree TV platform. TransGaming's customers include some of the largest and most influential content creators around the world ranging from EA, Ubisoft, Activision, NCSoft, CCP, Oberon Media, just to name a few. TransGaming also has strong partnerships with Apple, Intel, AMD, Nvidia.

- Canadian **performing arts** companies have long conducted successful international tours. The following examples illustrate how this sub-sector has achieved success in global markets, although in one case it is from a slightly different performing arts world:
  - **Cirque du Soleil** (of Montreal) is one of the world's leading performing arts companies. With over 4000 employees and productions in over 40 countries (in over 270 cities), the company is a true global success with an estimated annual revenue of more than $800 million. Critical to this success has been Cirque's innovative approach combining dance, digital effects, acrobatics, theatre and traditional circus fare. Some shows (e.g. Kà in Las Vagas) rely heavily on a highly sophisticated computerized system that is used to constantly reshape the stage.
  - **The Drowsy Chaperone** is a musical written by Bob Martin and Don McKellar (with lyrics and score by Lisa Lambert and Greg Morrison) that opened on Broadway (in New York City) in May of 2006 – eight years after debuting at The Rivoli in Toronto. Since appearing on Broadway, the musical – written as a homage to the American musicals of the jazz age – was won the prestigious Tony Award to Best Book and Best Score, and has also held major productions in Los Angeles, New York, London, Melbourne (Australia) and Japan, as well as two North American tours.
- **Heritage**: Canada has produced globally notable designers, curators, and museologists in the built heritage and museum sub-sector.
  - **Lord Cultural Resources** has an international reputation in museum and heritage design that spans six continents, including commissions for the rebuilding of Ground Zero in New York, the National Art Museum of China, the Louvre in Paris, the Guggenheim Museum Bilbao, the South Australian Museum and the National Museum Lagos in Nigeria. Lord offers services ranging from strategy and management to facility development.
- **Music industry:** This sub-sector has produced many talented recording artists of world fame, most recently the number one hits of Justin Bieber and Drake. Important to the economy, however, is whether top Canadian artists operate their management companies through Canada. A couple of Canadian music indies illustrate the potential for Canadian music sub-sector.
  - **Arts & Crafts Productions** is a Toronto-based independent artist services company. It combines traditional record label offerings with management, merchandising and licensing services. The company represents some of Canada's most acclaimed artists including Broken Social Scene (whose 2002 album launched the company), Feist, Stars and the Stills.
  - **MapleCore**, another music company, was founded to use the Internet to create opportunities for artists in a rapidly changing music industry. The company's first business line was

MapleMusic.com, a site that now provides customers access to more than 800 artists. The company has since grown to include distribution, publishing and ticketing services – making it a complete entertainment services provider.

- **Visual arts and crafts:** This sub-sector also boasts international presence and global export success. Artists and craftspeople are embracing digital technologies in both the creation and marketing of their products.
    - **By the Red Boat** is an Iqaluit-based online gallery and vendor of Inuit art. By collecting artists' work and displaying it online (e.g. the work of Inuit sculptor Saila Kipanek), this type of service allows remote carver access to markets not hitherto accessible. Moreover, by allowing artists to sell directly to consumers (wherever they might be in the world) a greater portion of the sale revenue is retained by the artist. This type of service contributes to the $32 million generated each year in Southern Canada and internationally by the sale of Inuit arts and crafts.

## 2. Uniqueness of the Cultural Work Force in Canada

The distinct nature of the cultural workforce is illustrated by the variety of occupations and the skills that are required to fill them. Several examples illustrate the uniqueness of the workforce.

| | |
|---|---|
| actors<br>animator, 2d/3d<br>announcers and other broadcasters<br>application designer<br>archivists<br>audio and video recording technicians<br>binding and finishing machine operators<br>broadcast technicians<br>choreographers<br>conductors, composers and arrangers<br>correspondence, publication and related clerks<br>creative-content consultant<br>dancers<br>directors<br>editors<br>film and video camera operator<br>games designer/developer<br>graphic arts technicians<br>graphic designers and illustrating artists<br>journalists<br>librarians, library clerks, library and archive technicians and assistants | managers in publishing, motion pictures, broadcasting and performing arts<br>musicians and singers<br>digital media artist<br>other performers<br>other technical occupations in motion pictures and broadcasting<br>photographers<br>photographic and film processors<br>printing machine operators<br>printing press operators<br>producers<br>professional occupations in public relations and communications<br>supervisors, printing and related occupations<br>support and assisting occupations in motion pictures, broadcasting and the performing arts<br>theatre, fashion, and exhibit and other creative designers<br>translators, terminologists and interpreters<br>writers |

However, the traditional value chains of each of the cultural sub-sectors have been substantially affected by digital technology, especially in the accessibility and distribution of cultural product. After decades of refining their trade in their chosen field skilled cultural workers face tremendous challenges to the traditional economics and business arrangements in their particular industry. Some of the trends identified below illustrate these challenges:

- There is a perception among consumers of cultural product that the value of the cultural work is lower, now that they can obtain it more readily on multiple electronic platforms. That perception, first brought about by peer to peer file sharing of music, depresses the prices that can be charged for cultural product sold by the unit or subscription, e.g. book, CD, DVD, magazine, electronic game, and TV channel.
- The film and television production and broadcasting industries have the Internet as a new competitor that is also chasing advertisers. Because of its enormous analytics capability to measure performance, Internet advertising is forcing traditional media into new standards of results measurement in order to be competitive.
- The cultural creator must now conceive of new content and services that can take advantage of all platforms, since the traditional media cannot sustain former levels of support. As well, distributors and networks are demanding multi-platform content. The producer must now develop or adapt to new business models, which

themselves are still embryonic and do not provide enough revenue to compensate for the lost revenue from traditional media. The technical worker must constantly upgrade skills for new technology;

- The heritage worker must continue to adapt to a constantly evolving digital environment for the conservation and exhibition of cultural heritage through museums, libraries and archives.

From a structural perspective, it is clear that the cultural sector has few large companies, many small ones, and many freelancers who are typically linked to unions and guilds. As the chart below shows, only TV and radio broadcasting can be labeled as a highly concentrated sub-sector. The top 10 employers in other sub-sectors represent only a small percentage of the work force in any given sub-sector.

| Sub-sector | % Jobs in Top 10 Companies |
|---|---|
| TV and radio broadcasting | 80% |
| Film and TV production | 11% |
| Sound recording | 8% |
| Book and magazine publishing | 19% |
| Digital media | 10% |

Source: CHRC, "Profile of Cultural Workers at Large and Medium-Sized Employers in the Cultural Industries" Prepared by Nordicity, February 2008.

Generally, too, the larger the company in the cultural sector, the greater the number of workers employed in the marketing and distribution of cultural product, rather than being directly involved with the creative process. While those involved with marketing and distribution have their own challenges in upgrading their digital skills, the cultural workers and content entrepreneurs are largely organized as SMEs. Time and resources are at a premium within SMEs, and thus represent another set of barriers to the delivery of relevant and appropriate training.

Another central challenge is that cultural workers operated for decades within a public support system that protected them in many cases from foreign competition. As the level and form of protection face new challenges, the cultural sector needs to reposition itself as more market-based – including appeal to foreign markets. This inexorable trend toward a more global marketplace, despite Canada's historic value placed on indigenous cultural content, adds to the overall challenge to change and adapt.

Indeed, the "digital content advantage" can only be seized for the most part if the cultural sector adapts to the global marketplace. Fortunately, the cultural sector has demonstrated that elements of the creative industries and heritage have already met this challenge and will be building on an entrepreneurship that is already global in scope.

In sum, the cultural sector is going through a radical transformation, and contains a workforce with unique skills that need to be adapted to the digital era. This workforce, with skills unique to the cultural sector, needs to make the transition to digital and a more competitive and global environment. That is the central reason why the DES should consider skills development in the cultural sector of critical importance.

## 3. Skills gaps and issues

### 3.1 The Experience of CHRC

CHRC has undertaken training gaps analyses of many occupations and functions in the cultural sector over the last several years, including the following:

- **Digital Media** (content creation in new media, interactive media producers);
- **Film and television** (below-the-line workers, directors, directors and producers of documentary filmmakers, location managers, producers, production managers, show runners);
- **Heritage** (built heritage, librarians and library technicians);
- **Live performing arts** (automation technicians, entertainment riggers, general stage technicians, presenters);
- **Music and sound recording** (music artist managers, music publishers, presenters, record label managers, recorded music production);
- **Writing and Publishing** (book publishers);
- **Cross-sectoral** (cultural managers, cultural mentors).

In some cases, CHRC stimulated a follow-up initiative to develop recommendations for national training strategies. These strategies generally recognize the scattered and uncoordinated delivery system and low level of coordination across post-secondary institutions. They also reiterate a constant need to revise and upgrade programs, as well as create national standards. Of course, the training delivery must be adequately financed to effectively reach those needing training. The targets for the training delivery and other human resource practices upgrading should include new entrants to the work force, the mid career individuals, and the more senior managers/leaders in the cultural sector.

CHRC developed a digital media content creation "technology roadmap" (TRM) that pointed out that DM content creators are "creative-technology professionals" who come from all educational backgrounds, for example philosophy and social work, but "there is a definite and increasingly acute need for formalized, digital-media-specific training, and that trend can only accelerate." The TRM was followed-up by the development of a data base of "digital hubs" across Canada, whose role is to bring the technical, creative, and entrepreneurship skills together to meet the new digital platform requirements. It points to an emerging need for digital skills upgrading for the following three areas:

- creation and production for multiple platforms,
- exploitation of emerging revenue potential in new business models, and
- marketing and distribution via web-based tools and analytics.

As this discussion shows, the CHRC has been actively engaged in addressing the skills development challenges faced by the cultural sector. While largely consistent to what appears to be the challenges in the ICT sector, there are differences in skills needs between the ICT and cultural sectors. These differences mean that the cultural sector should be treated as a priority in its own right.

## 3.2 Skills Needs and Training Gaps by the Cultural Sector

The merging of cultural sub-sectors and art forms is being driven by digital technology. There is a thirst within the cultural sector to develop skills in digital technology and to address the related challenges collaboratively an intensive survey of cultural workers and employers carried out recently by the Conference Board of Canada as part of their consultations for a Cultural Sector HR Study, reflected the urgency around training in digital technologies for cultural employers and workers. The highlights of this research are presented for each cultural sub-sector:

- **Film and Television:** The rapid pace of technological change and the associated impacts on marketing, production and distribution channels require ongoing skills development for the film and television production workforce. While employees, the self-employed and employers all see the need for new digital skills to be adopted, 40% of self-employed cultural workers indicate that new digital skills are needed to "the greatest extent." This need is likely related to the relative lack of job security among self-employed film and TV workers – and the constant need to upgrade one's resume (e.g. with latest 3D camera skills).

  Such skills are needed both at the entry-level and in mid and senior leadership as, for instance, television producers must now become producers of content to be distributed on multiple platforms. At the same time, these producers must simultaneously understand how to finance, produce and distribute their works.

- **Broadcasting**: new technologies are expanding the range of listening and viewing options available for consumers, even replacing traditional sources of news and entertainment in some cases. To adjust to these realities and develop in their careers, the industry's workforce needs to continually upgrade digital media and technical skills. For employers, this means acquiring the know-how to develop successful business models that integrate digital media, connect with audiences on all platforms, and find new market opportunities. It will also require the mind-set to nimbly adapt to constant change and increasing demands to multi-task.

  Similarly for employees, ongoing technical and digital media training is essential for both new entrants and established workers alike. In many cases, both groups are learning at the same level, although depending on the generational gap, the comfort with new technologies may differ.

- **Heritage:** In many ways the Heritage sub-sector is well along the road of embracing and incorporating digital technology, for example the work of the Canadian Association of Research Libraries in data management, digitization and preservation of research. However, as heritage institutions incorporate new technologies, it is imperative that both employers and employees keep their digital literacy skills current. Library materials, records, archives and collections have become available online, data and information is managed digitally, and a sophisticated online presence must be maintained to attract a younger, more diverse generation of patrons. Heritage employees and employers have identified technical and technological skills as the top two priorities for skills development. The need for training to keep current with the latest technology advances is ongoing, as evidenced by the nearly 80% in 2009 who were engaged in some form of skills upgrade and spent twice as many hours as other sectors closing the gap.

A major challenge in the heritage sub-sector remains access to funds. This problem is particularly acute in this sub-sector, because it relies overwhelmingly on government spending and policy, and because institutions have broadened their mandate over the years to provide community services.

- **Live Performing Arts:** In a creative industry more vulnerable than others to economic downturns, performing artists are incorporating new technologies to not only push the boundaries of their performance but also reach out to new markets. Using multimedia, projection and special rigging requires additional training for artists and production staff if they are to draw audiences, exceed expectations and ensure a measure of financial security.

  Performers are also integrating the internet and other forms of digital technology to offer new means of exhibiting artistic disciplines, advertise their performances domestically and internationally and reduce the costs associated with overseas marketing campaigns. As such, IT and graphic design skills are becoming increasingly necessary.

  Training for the live performing arts workforce is particularly challenging given that the sector is characterized by not-for-profit and charitable organizations and is dependent on the discretionary spending of their audiences.

- **Music and Sound Recording:** In the sub-sector that has been disrupted the most by technological changes it is not surprising that its workforce ranks the need for technical and technological skills (and business and managerial) higher than do any of the other sub-sectors.

  Employees, the self-employed and employers in this sub-sector are heavily reliant on software to write and produce music. They also depend on the Internet to distribute their product, connect with fans, collaborate with other industries, market merchandise and tours, and engage in public relations. In terms of general IT skills, training in business management software is particularly important for independent artists and managers. While many already have these skills, they require constant upgrading to access the most advanced technology and improve their products. Unfortunately, many report that access to appropriate training can prove difficult.

- **Digital Media:** The digital media workforce is highly skilled in producing video games, developing software for PCs, providing Internet services, and designing websites and social networking services. Workers are highly creative and innovative, and have the ability to commercialize their own products and self-publish through viral marketing.

  While many employees and self-employed workers are adept do-it-yourselfers, they require access to training to improve quality of their work. Others need specialized training to complement the general skills they developed in school.

  Gaps also exist in IT, creative design, and “hot skills” like 3-D modelling, scripting and texturing. Finally, regardless of expertise-level, all need to continually upgrade their skills to stay current with the rapid pace of technological developments, particularly in this sector. Advanced professional development is, however, complicated by the fact that digital media is a relatively new sector characterized by few professional and personal connections or national networks to organize stakeholders.

- **Writing and Publishing (books and magazines):** Major technological changes have made a significant impact on the writing and publishing sub-sector, creating opportunities, posing challenges and demanding a stronger skill set from its workforce. Publishers are shifting their products online and digital books becoming popular. Writers are using social networking sites to market their creations. Online writing, editing and publishing expertise as well as website design and maintenance are in demand. Also, the Internet allows for readers and consumers to interact with storytellers, thus leading to purchases and a loyal following.

These technology changes make it essential for employees, the self-employed and employers to develop high levels of technological literacy. However, the workforce in this sub-sector spent less time on training than other cultural subsectors. Possibly, isolation of freelance writers and editors accounts for this training lag; indeed, online tutorials may be necessary to close the gap in technological skills.

- **Visual Arts and Crafts:** A sector traditionally known for its use of canvas and paint, visual arts are making significant use of digital media, as are the crafts component. In fact, the need to continually develop a high level of expertise in emerging technologies is no different for this workforce compared with cultural workers.

  Approximately 40% of this workforce feels that more technological training is needed to network as well as market and distribute their creative works. This need is readily understood for this sector, because workers tend to live in isolated communities, unconnected to other artists and the broader market itself, and whose products may be difficult to transport. In certain instances, they are required to submit electronic versions of their work instead of hardcopies. In addition to digital skills, a solid understanding of intellectual property rights for their online media is critical but lacking.

While each of these sub-sectors has its own "story," it is true at a more general level that there are common skills needs and training gaps. Broadband platforms represent in effect a common denominator for different cultural sub-sectors who also produce for use on broadband platforms. This commonality means that there will be more convergence in needs and gaps. Whether the creative product starts as a book, a film, a video game, it will eventually have a video presence on-line, on the iPad type of platform and on the mobile device. At the same time, the delivery mechanisms for training services will need to recognize the traditional training and experience of the existing workforce. As well, educators in post-secondary institutions have deep skills in the traditional sub-sectors to which they will need to add the digital skills layer in the training of new entrants.

### 3.3 The Issue of Pure ICT vs. Hybrid Digital Skills for the Cultural Sector

The Consultation Paper develops the issue of building skills for tomorrow from the point of view of the ICT sector – addressing skills shortages – and proposes a longer-term solution to ICT skills gaps:

- expand post secondary programs that combine ICT with other fields,
- expand programs to integrate under-representative groups,
- improve continuing professional development.

These longer term solutions are generally in the direction that is recommended for the cultural sector as well. However, the appropriate approach for the cultural sector is to focus on industry relevant digital skills, rather than simply adding generic IT training. Yes, digital skills include learning to use software tools that solve specific cultural sector problems, or otherwise assist the creation, production, marketing, distribution and presentation of cultural product. But it is not pure ICT applied to the cultural sector. For the cultural sector digital skills encompass:

- learning how to create for all the new platforms made possible by broadband and mobile technology and infrastructure;
- learning how to use the existing broadband and mobile networks for marketing and showcasing the cultural product via the Internet;
- the development of business and entrepreneurial skills needed to navigate in the new digital environment, in particular how to generate new sources of revenues from the emerging applications and partnering with distributors, aggregators, and networks that tap into these new revenue sources.

Thus, the skills sought in the cultural sector are **hybrid creative-technical-entrepreneurial** to develop a multi-skilled workforce unique to the cultural sector. It is not simply the adaptation of IT systems and products to yet another industry sector; nor does it mean bringing in ICT workers to do creative work, as creators need to adopt technical skills.

### Amy, the screenwriter

While she started out writing for TV and film, Amy now has to connect with audiences on an entirely different level. She writes webisodes for established TV shows, but also scripts for original web series, interactive games, and has been working on a comedy for Facebook and drama for twitter. With these digital platforms, Amy gets to work with both broadcasters as well as gaming companies locally and from around the world. Perhaps most importantly, by creating stories independently for social networking sites, the online environment allows her to exercise a greater level of creative freedom and control over her work than she'd ever imagined. Amy has also had to learn how to interact with her audience in a meaningful way. As quickly as she writes, her audience responds with suggestions of plot twists and turns that she immediately incorporates into her next installment. In doing so, she's been forging an increasingly loyal relationship with fully-engaged participants. The viability of these storytelling vehicles depends on writers with the skills and knowledge to push the boundaries of the digital world. Writers must grow their talents in tandem with the evolving digital environment to open up interesting creative avenues and successful careers.

Some examples of the dramatically shifting needs of digital content show how they raise the bar in terms of skills required. Below we recount a few stories of real persons (with fictional names) that illustrate how digital technology challenges the traditional cultural worker's world and how they can respond. As individuals, they appear more as success studies, but these successes offer a taste of the overall skills upgrading required for cultural workers.

### Dax, the presenter for Live Performing Arts

Dax is a presenter for the live performing arts and has seen his role evolve significantly with the impact of digital media and technological changes. Over the past few years, he's learned to continually upgrade his skills and tap into the latest tools to stay ahead of the curve. For instance, while previously a casual user of social media such as Facebook, YouTube and twitter, he now uses them much more strategically to network, engage in marketing, find and share information about artists, and quickly catch a performance through an artist's website or online video if he can't make it to a live performance. Also, by using box office and ticket software as well as more advanced general IT skills, Dax has been able to conduct more targeted marketing and tailor services more precisely to purchasers' preferences and demographic groups. Such approaches include special tie-ins with partners such as nearby restaurants, notifications of future events or performances, and automatic reminders.

Moving progressively to larger venues in his career, Dax has learned to sharpen his digital and management logistics skills to better understand technologies such as large-scale audiovisual effects. As the music industry relies increasingly on major tours to generate revenue lost from CD sales and freely available music on the Internet, venues must accommodate the larger and more complicated special effects required for such performances.

While professional technicians actually operate a venue's audiovisual system, Dax finds it necessary to know the technical terms, how the technology works, and prepare for upcoming software changes. The more technologically savvy he is, the better he can guarantee his own success and that of the venue.

Within the context of digital skills requirements for the cultural sector, we recognize that general digital literacy is needed in all human endeavour. There is a lack of appropriate investment in ICT across all industries. However, while general digital literacy is critical, in this submission we concentrate on the cultural sector workforce and emerging workforce – which basically assumes a considerable degree of computer literacy.

### Hasahn, the Visual Artist

As a photographer working across most sectors of the cultural industries, Hasahn shoots exclusively with digital technology and could not imagine “going back” to film. He attended school 10 years ago right in the middle of the switchover when students were splitting their time equally between film and digital projects with only one Photoshop course to guide them. Within a year of graduating, the conversion was complete as the large commercial studio in Toronto where he worked replaced its entire stock of film equipment with digital.

For Hasahn, keeping up with new software to expand his skill set is second nature, requiring only a few hours with an online tutorial followed by on-the-job practice. The same is true for his colleagues whether they are new grads or an older generation of seasoned photographers. (Although, he admits, new grads do have more exposure to aspects of a software package through school projects that a professional would rarely use in his/her day-to-day work.)

Depending on the type of project, Hasahn can choose from a range of photography products that speed up the entire process from shoot to print. Like most photographers, he uses Adobe Photoshop CS5 and Lightroom, which he says are indispensable.

Working in studio with the Capture 1 Pro, he can shoot directly to his computer instead of to a memory card. “Tethered” to his laptop with a cable, this workflow program allows him to skip a number of time-consuming steps such as downloading images from the card to the computer and arranging them in a file-browsing program. This approach does not work on location, as running around with a laptop and camera is a little impractical. However, eliminating those steps makes all the difference when he works in the high-volume fast-paced world of a commercial photography studio.

Hasahn has the aptitude for adopting new technology and is a role model for the successful transition lf a cultural worker to seize new opportunities. While technology will not give a practitioner a good eye for photography, acquiring the skills to adopt new techniques is critical to prospering in the business of this form of visual arts.

### Kelly, the future Heritage designer

Kelly never had an interest in heritage institutions until last year when he visited the Gandhi Multimedia Museum in New Delhi. The centre’s use of technology made him completely redirect his university choices to pursue museum studies with an emphasis on digital technology, when he returned home to Canada.

His objective is to change the museum-going experience for others the way Ranjit Makkuni, Director of the Gandhi Museum, did for him. He just hopes he can develop the same types of skills without venturing too far outside the province.

In designing the Gandhi museum, Makkuni, a world-renown multimedia research and designer, used a variety of information technology tools to present the historical records of Gandhi’s life. One of his main concerns was communicating the political and spiritual leader’s message to the young people of today’s India who are massive consumers of new technology. Kelly specifically remembers how various exhibits were developed around the Indian spinning wheel, prayer beads, and other sacred objects that when touched or operated produced light displays, and projected images, significant quotes, songs, fragments of speeches, and other symbols of Gandhi’s life.

While the traditional museum experience consists of observing static objects and reading short texts on a two-dimensional panel, Kelly wants to study how to apply new approaches to get museum-goers to interact with exhibits, interpret the information for themselves, and gain a more lasting and visceral impression. In his opinion, as museums grapple with the challenge of reaching out to new and traditional visitors, he now knows that acquiring digital and technological skills are going to be as important as traditional heritage training and knowledge.

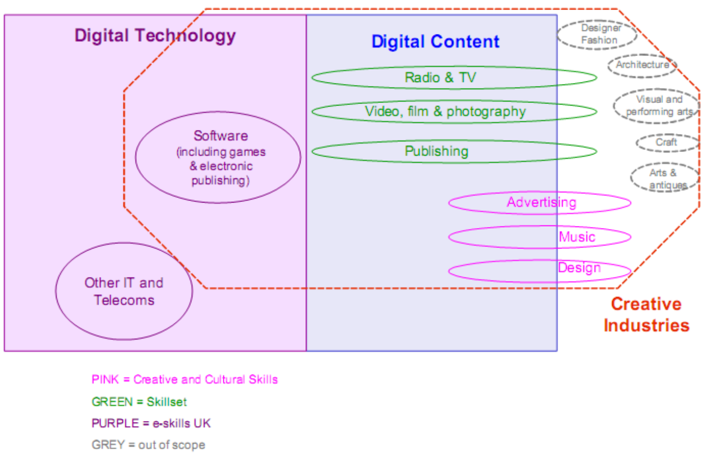
# 4. Canada’s Relative Standing in Skills Development

## 4.1 Foreign country initiatives

Many countries have recognized the new economics and promise of the cultural sector for economic development, and almost all countries who have prepared digital strategies have included digital literacy. However, as the following synopsis of four countries indicates, the ICT sector remains the focus of any training initiatives. While some countries may consider the cultural sector as being recognized in their national digital strategies, such recognition does not typically carry forward in the development of specialized skills for the cultural sector. The following represents a glance at the digital literacy and training focus (if there is one) for four countries.

| **Germany**<br>***iD2010 – Information Society Germany 2010* (2006)** | **France**<br>***Numérique 2012: Digital Economic Development Plan* (2008)** | **New Zealand**<br>***Digital Strategy 2.0* (2008)** | **Australia**<br>***Digital Economy Future Directions (2009)*** |
|---|---|---|---|
| Should allocate funds for post-secondary ICT programs and digital literacy training | Calls for reduction of the “digital divide”, between rich/poor and urban/rural, young/elderly etc.<br>Encourages use of broadband technology to facilitate civic participation, delivery of public services | Promotes digital literacy, skills upgrading formal education in ICT<br>Cultural sector survey (2008) shows some gaps, and need for general upgrading of training, but not specific to digital transition | Expand ICT training institutions & creating more skills upgrading centres<br>Noted that the content industry was at risk due to “slower skills development and lost investment opportunities” |

The UK provides a more nuanced case, in that there has been a great deal of attention to the skills sets required for the cultural sector. One useful report is: Strategic Skills Assessment for the Digital Economy, put together by Skillset, Creative and Cultural Skills, and e-skills UK. The very nature of these three sponsors caused the report to address both the technical and creative. The following diagram is this report’s graphic depiction of the interests of the three sponsors that illustrates this overlap.




This report shows how the technology and content sides are both important, and that if you are going to upgrade the skills of the creative industries, you must deal with both the creative and technical components. The following chart summarizes its conclusions about current and future issues in the UK for digital technology and digital content – and for both.

| | Current Issues | Future Issues |
|---|---|---|
| **Digital Technology** | Technology skills shortages are holding back business growth.<br>Companies reporting skills gaps say that they affect over three quarters of their Technology professionals.<br>Failure to invest in the training of Technology professionals increases the smaller the company. | With the Technology sector recruiting 110,500 people a year, skills shortages (recruitment difficulties) will increase as the economy recovers.<br>Skills gaps will increase as companies need increasingly complex ranges of high level skills in technology and business. |
| **Digital Content** | 50% of Creative Media companies report skills gaps, with skills for multi-platform content using new digital technologies a primary issue.<br>Creators of digital content face particular issues in creating sustainable business models in a digital environment. | Skills shortages and gaps relating to the digital economy will increase across the Content industries as content increasingly moves online.<br>There is an increasing pool of freelancers in the Content sector as a result of the recession; maintaining the vitality of the talent pool is essential to support recovery and growth post-recession. |

| | Current Issues | Future Issues |
|---|---|---|
| **Both** | The training environment is fragmented and difficult to navigate, and the qualifications structures are not well aligned to employer needs.<br>The potential of Higher and Further Education is underutilized in terms of up-skilling of the Technology and Content professional workforces.<br>The education system is not supporting the digital economy in terms of volume or capability of new recruits. Key issues are: careers advice relating to digital economy jobs is far from adequate, and gender and other diversity indicators are worsening. | Technology developments will have a profound effect on the skills needs in the whole Technology and Content workforce, in particular the use of information and analytics, the need for content to be provided on multi-platforms, the rise of social computing and the impact of 'digital natives' as consumers and as employees. |

This report noted specific skills as key to meeting the future needs of the creative and technology communities. They are quite consistent with the needs in Canada.

- **Multi-skilling**: an understanding of different technology platforms and their impact on content development and digital work flow, and new approaches to working in cross-functional creative / technical teams within and across companies.
- **Multi-platform skills**: the creative and technical skills to produce content for distribution across all potential platforms, and the ability to understand and exploit technological advances.
- **Management, leadership, business and entrepreneurial skills**: especially project management for multi-platform development; the hybrid skills combining effective leadership with innovation, creativity and understanding of technology, and the analytical skills to understand audience interests and translate it into business intelligence.
- **IP and monetization of multi-platform content**: understanding of intellectual property legislation to protect from piracy, and exploiting intellectual property internationally to take full advantage of emerging markets - with particular focus on the ability to deal with the problem of illegal downloading and copyright infringement.
- **Broadcast engineering**: for digital transmission, that was identified as an area of skills shortage.
- **Archiving:** archiving of digital content being an area which is attracting increased attention as a challenging issue for the future.
- **Sales and marketing:** being particularly important in commercial radio and an emerging need in other sectors.

Of special interest is the conclusion that "*the skills to produce and monetize content for multi-platform is a top priority,*" for both technology and content sectors to respond effectively to the opportunities and threats posed by globalization and digital technology advances. Both will need increasingly high levels of skills, and greater technical capability. Hybrid skills (technical, business, creative, interpersonal) will be increasingly important. Existing shortages and gaps will be exacerbated with greater demand for scarce skills. Particular priorities in the cultural sector will be the ability to produce content for distribution on multiple technology platforms, and the ability to monetize that content.

Thus, apart from the UK, Canada could be really advanced if it does recognize that the cultural sector requires unique skills training solutions to make the sector "digital ready." However, the UK has already invested in research to make this point, and the evidence is that new training delivery initiatives are emerging to fill that gap. Canada should seek to emulate the UK in this direction, and such investment could lead to a more competitive direction for Canadian firms in the cultural sector.

In a study of best practices in other jurisdictions, the Cultural Careers Counseling of Ontario (CCCO)[4] found that "partnerships and collaborations play a fundamental role in the success of different (training) programs," and that

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[4] National and International Best Practices for in Career Business Skills Training for Cultural Workers; 2010 for the Ontario Ministry of Tourism and Culture.

such “partnerships may be intra-governmental (already described above), inter-governmental or cross-sectoral.” Some examples illustrate that partnerships aligned with academic institutions offer excellent support, as follows:

- The Queensland University of Technology (QUT) in Australia created an incubator for emerging business in film, television, music, design and new media; there is a close relationship with the QUT faculty through seminars, workshops, advice and access to all the research necessary.
- The UK National Endowment for Science, Technology and the Arts (NESTA) works directly in partnership with different governments (e.g. city of Manchester and the government of Scotland) to develop creative enterprise training schemes. In other cases, NESTA brings together cross-sectoral teams that embrace arts, business, academia, industry and governments.

The CCCO report found that a common thread of these collaborative programs was the widespread focus on experiential learning in a range of learning formats including mentorships, internships, apprenticeships, networks, work placements, and training related to specific industries (e.g. union certifications). Furthermore, most of these programs result from clear public or foundation policies and plans that respected the economic potential of the sector and offered the opportunity for coordinated and strategic action.

One example of a practice that seems to work is a NESTA organized mentorship program in the UK to address a major business capacity issue in the cultural sector. It is based on the finding that creative people often do not have the capability to turn their ideas into growing businesses. The mentorship program is relatively low cost because the mentors donate their time.

It is considered very beneficial for recipient companies. It is successful because mentors not only advise on business issues but they also help mentees expand their network of contacts. In addition, many mentors provide financial investment to the mentee companies (and thus see possible new business/investment opportunities.).[5]

The UK mentorship program is, in effect, a skills transfer program that appears to be working. In Canada we need to innovate in similar fashion just to stay abreast.

### 4.2 Performance Measurement of Skills Development

As is well known, Canada lags the US and other countries in terms of ICT investment and usage, which affects our productivity. We do not appear to know exactly the reasons for the lower investment and adoption rate, but there is consensus that we need to improve our record in that measurement of ICT investment.

There are also many indicators of where we stand in terms of broadband communications and wireless. Incumbent telecom carriers tend to make the case that Canada is on par with or ahead of other industrialized countries according to many indicators. New entrants tend to argue that ore effective competition is needed because other metrics show Canada lagging.

In the cultural sector, we can rate ourselves vs. other countries in terms of employment and GDP (or GVA). The World Intellectual Property Organization (WIPO) in particular has shown leadership to ensure that countries do generate comparable statistics for the cultural sector. That is why we can cite that 662,000 people work in the creative industries as defined by WIPO endorsed methodology.

Therefore, we believe that the target for the cultural sector should be that the cultural workforce and share of the GDP keep growing at the rate it has been doing so. The cultural sector’s share of national employment is 3.5% vs. 3.3% in the US and far below the UK figure of 5.8% (using statistics for the latest year in which figures were available for these three countries). We believe that Canada should establish a target to move that figure to a level that makes up half the distance to the UK figure, say 4.5% within 10 years. This target would recognize that the UK has some imbedded advantages, but that with proper investment in human resources and financial capital, Canada could climb to that number.

As to targets for skills development, there has been no real attempt to define performance or progress – except in number of graduates for different sub-sectors, or in the traditional economic metrics for cultural sub-sectors. At this

[5] Interview with Jon Kingsbury of NESTA;  This mentorship program is in contrast to the “borrow-a-new-MBA” program that NESTA tried and found to be very ineffective. Forty year-old creative entrepreneurs found young MBAs too abstract and too green to help them.

time all we know is that unless Canada keeps improving the training services and other human resource practices in the cultural sector we will fall behind.

The skills illustrated earlier in this submission show the enormous complexity inherent in the transition to digital for the cultural sector. If teaching at the post secondary institutions in Canada does not ratchet itself up the digital learning curve, our new entrants to the workforce will not be well equipped. If the current workforce does not retool, on a constant basis as illustrated in the personal vignettes described above, it will have a negative effect on the growth of the cultural sector in the future.

Even though there is no on-going skills measurement at present, we should be developing indicators of progress. They are necessary for assessing the effectiveness of training programs as well as assessing whether there is a supply is matching demand. That objective is sorely tested when the digital dimension arises, where the nature of the demand is constantly changing to reflect new economics and business models.

Accordingly, we training effectiveness measurement tools should be expanded and deployed as the cultural sector enters into the critical transition period. An organization like Telefilm Canada is constantly measuring the success of its training and other programs, and provides one model for national and provincial institutions.

## 5. Directions for Addressing Skills Development Needs in the Cultural Sector

As stated earlier, this submission's main purpose is to position the skills development needs of the cultural sector. As well, we have supplied the documentation and reasoning behind answers to specific questions that appear in the consultation paper. For ease of reference, we repeat the questions below in sequence to headline our responses to them.

***What do you see as the most critical challenges in skills development for a digital economy?***

In this submission we have shown that **the most critical challenges in skills development for a digital economy begins with the recognition that cultural sector skills will not be met merely by upgrading ITC skills.** There are many ways in which technology alters the landscape with respect to the creation, production, marketing, and distribution of cultural works – and puts enormous challenges on the skill levels of the cultural sector.

***What is the best way to address these challenges?***

The best way to address these challenges is for national leadership and cooperation with the provinces to produce **a digital skills strategy** for the cultural sector – use of digital technology and platforms in production process, in marketing/promotion, and in new business models. To this end, CHRC plans to commission a study on the impact of digital technology on the cultural sector and the HR implications. We look forward to partnering with training and other relevant institutions in this endeavour, as well as to collaborate with sister organizations at the provincial level.

***What can we do to ensure that labour market entrants have digital skills?***

As a general principle, we can ensure that labour market entrants have digital skills if there **is constant review, experimentation, and revision of the course material and approaches at the post-secondary level**. We do have to be careful for our institutions to avoid launching into new programs that are indeed similar to existing initiatives on the assumption that these skills will be needed. Rather, the accent should be on revamping existing programs and **tightening the links with industry** so that the skills of new graduates are relevant.

Provinces need more effective programs that promote and support curriculum changes needed at the post-secondary level. Foremost among the new needs would be the teaching of collaboration skills, so essential to the fusion of technology, business, and creation. On a more general level joint industry-university development of relevant courses will help improve the value of the incoming crop of employees to the sector. Of course, craft and technical unions and guilds would need to be part of this process.

In reviewing a draft submission to the DES Consultation process by OCADU, CHRC believes that appropriate training can partly be achieved through what the submission calls for: "a concentrated strategy of investment in talent development in digital arts, cultural industries, media and design." CHRC also endorses OCADU's call for more support for **training that marries art and technology and builds significant capacity in art, design, digital media collaborative research**: "Compared to the major investments by other countries such as the Welcome Trust in the UK, or entire institutions like the ZKM in Germany, ALIVE Laboratories in Hong Kong, Ars Electronica in Linz, Austria, SmartLab, UK, Canada has provided uneven support."

***What can we do to ensure the current workforce gets the continuous up-skilling required to remain competitive in the digital economy?***

As to ensuring the current workforce gets the continuous up-skilling required to remain competitive in the digital economy the same regimen is upheld – constant review, experimentation, and revision of delivery methods. More specialization is required both at the cultural sub-sector level, and on the cross -sector basis in the entrepreneurial skills with real world examples of new business model development. Thus, this up-skilling training is twofold: **sub-sector specialization, and cross-sector skills in incorporating the new platforms into the skills sets.** As a result of recent research of employees, freelancers, and employers, we are looking at ways to pool resources to develop **skills in digital technology** for content creators, producers, disseminators and managers. In parallel, there is a need to develop the skills that will facilitate collaboration among all sub-sectors to develop **new business models** which adapt to the changes of digital technology.

***Are different tactics required for SMEs versus large enterprises?***

As noted earlier, the cultural sector is basically an SME and freelance culture. Experience suggests that many SMEs develop global relationships and operate nimbly and successfully in the global arena. But research shows that SMEs are particularly hard to serve, as they are short of time, money, and even inclination. As we have shown earlier through vignettes, in-career cultural workers can take advantage of new technology and processes on a continuous learning basis. So, individuals can learn to upgrade themselves but there are barriers to such learning for those less proficient technically. Through some form of flexible training, individual mentors, and financial incentives, the sole practitioners and smaller companies can join this continuous learning proposition.

As for the more solidly entrenched and larger enterprises, the support can be more traditionally deployed – through internal training, good HR processes, and support for attending external educational institutions. While a few companies have enough of a professional HR culture, they need to focus on training as they can sometimes radically change their processes, systems, and business models. For prospering in the future, the country may need more consolidation in the industry – and thus the tools and training required to achieve successful profitable growth through acquisitions and other joint ventures.

For SMEs and larger companies, we need to make investments in **management training for the newer business models**, e.g. in areas of export development, marketing and business affairs regarding complex contracts. We need to support and encourage **on-the-job training and mentorship opportunities** with clear expectations and outcomes.

> For CHRC, this submission has given us an opportunity to synthesize our own thinking with regard to the central role that the cultural sector must play in the Canadian digital economy; the steps that must be taken to ensure that the cultural workforce has the combination of creative, technical and entrepreneurial skills necessary to play that role; and the leadership CHRC must provide to realize Canada's "digital advantage" through a vibrant, highly skilled cultural workforce.

Please refer to CHRC's *Digital Media Content Creation Technology Roadmap*:
http://www.culturalhrc.ca/minisites/New_Media/e/technology_roadmap.asp