



Society for Art and Technology

[TRENDREPORT]

Digital Capability, Digital Culture, and Networked Markets

The Time Is Now

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1. Introduction – Welcome To A World of Digital Culture

Montreal has begun to prepare for a future increasingly driven by creative capabilities and the dynamics of collaboration. Restless, energetic communities of individuals and groups are demonstrating that creativity and the digital capabilities of multimedia thrive in collaborative networks, and that the content of our culture is increasingly built in collaborative digital forms and idioms.

In that context, a recent study commissioned by Concordia University (*Montreal – Metropole Culturelle*) underlines an important opportunity for Montreal and its communities of artists, researchers and creative digital citizens to contribute in many ways to a vibrant social and economic future. Indeed, Richard Florida published a book in 2003 titled “The Rise of the Creative Class” in which he outlined the factors – such as diversity, tolerance, education and certain types of infrastructural technological and socio-cultural support - that are enablers for a creative, culturally oriented knowledge-based economy.²

Around the world the mass customization and personalization of experience, hip-hop and rip-rap, re-mixed music and streaming video and sound represent new ways of organizing and assembling the new interconnected, hyperlinked forms of digital content. At a rapid pace, the creation, availability and distribution of digital content continues to become easier, cheaper and more ubiquitous - in Quebec, in Canada, in North America and around the world.

The evolution over the past couple of years of the Web, wireless capabilities, and broadband access have created a perfect storm, wherein it is becoming apparent all around us that the inchoate promise glimpsed by the dot.com boom is becoming more real, more tangible and is finding traction in many areas of human activity. **The time is now ...** for acknowledging that these conditions are with us to stay, and that significant impacts and different forms of creating, commercializing and distributing cultural content are underway and offer significant opportunities and challenges.

Montreal’s Society of Arts and Technologies (SAT) is an important component of this convergent spirit and consensus. Its focus on aRT & development for the creative capabilities of the digital cultural world provides the Montreal creative digital community with an innovative window on the growing opportunities to create and introduce innovation and high-quality cultural content.

² The Rise of the Creative Class, Richard Florida, Perseus Books, April 2002

2. A Cultural Transformation Is Underway

Many Different Factors ...

Let's go back in time ... approximately 20 years, to a seminal event in the stimulus and/or acceleration of cultural transformation ... the invention and rapid mass popularity of the Sony Walkman. We believe a forceful change was introduced by combining the microchip, miniaturization, effective industrial design and the relative ease of recording music onto a digital format such as CDs.

All of a sudden people began to be able to choose their own music, and walk around or engage in activities with a soundtrack of their own choosing playing in their head. They were able to create a personal aural experience as the background to the life they're watching pass in front of their eyes. Figuratively, people were able to be a main character in their own movie.

As the parallel IT/PC revolution began and grew, the personal music recorder also evolved relatively rapidly ... from cassette tapes to mini-Discs and CD's, to added features that made navigation and copying CD's easier, and most recently, MP3 files, music downloading, music piracy, and almost complete freedom to become one's own DJ, composer and audience. The phenomenal popularity of the iPod is not hard to understand.

So too with the advent and evolution of image-making equipment ... first video recorders, then digital cameras and cell-phones with digital picture-taking capability that have enabled easy uploading of pictures to the Internet, and most recently inexpensive high quality digital video recorders. Services that support the playful, enjoyable and social-network based use of these capabilities have been proliferating at lightning speed, evolving in parallel with the rapidly spreading social phenomenon of blogging. A leading example is Flickr, a wildly popular photo-sharing and relationship-creating web site.

Another useful example that speaks to the effects of digital capability is the change in viewing habits and use of television is the time-shifting versatility of TiVo technology, which uses the power of the microchip to change the nature of viewing digital video and sound content. Now PVR's (personal vide recorders) based on this technology are being purchased and installed by significant numbers of television viewers. In effect they can now record onto hard disk whatever they want to watch, whenever they want to – no more bulky VHS tapes

More and more software and equipment is becoming available every month that helps people shift from being only consumers of broadcast content to active participants in collaboration if not producers of their own content.

It is becoming clear that the impact on peoples' lives due to the interactivity-enabling character of the digital infrastructure will be very large, and is still in an early stage of evolution. SAT's founding vision, its development to date and its current objectives position it to be a vital component for helping the impacts unfold in positive ways that can provide profound benefits to its networked community and to Montreal and the province of Quebec.

A Sense-Surround Creative Culture

“Maybe one day, this technology will be able to create an experience of all the senses ... but until then, we should try and experience our own sense of the world around us.”

Sensorama (The New Youth Culture of Intense Experience), St. Lukes, UK¹

This statement from the Sensorama report by St. Lukes introduced an interactive web presentation developed in 1999-2000 by the groundbreaking advertising agency and trends consultancy St. Lukes, of Covent Garden, London UK. Much has happened since, at both extremes of the ubiquitous and constant polarities that define our post-modern age.

The impacts of the silicon chip and our full-blown entry into the digital age have been forecast for quite some time ... and have to date been experienced in stuttering, start-stop-forward-hold-on-step-back-start-again bits and bytes, so to speak. A plethora of books (examples such as the Toffler's *PowerShift*, Negroponte's *Being Digital* and Robert Barnard's *Chips and Pop – Decoding Generation Nexus*) have warned us, time and again, that in a wide range of ways the future will be more and more different - that we will not go back to the stable and in retrospect slow-moving environment that existed pre-computer, pre-Internet and pre-World Wide Web.

What Happened?

We've had a long slow buildup to the interconnected Digital Age – an age where work, play and general life are increasingly surrounded by interconnected integrated applications and embedded silicon chips. The early days of the Internet were 30+ years ago now, the PC as a common tool made it debut only 20 years ago, and the Web only a little more than 10 years ago. Along the way, information hardware and software have continued an inexorable path towards greater ...

- integration of functionality
- interoperability of elements or components
- ease-of-use and general usability
- affordability

- - - - -

¹ Sensorama – The New Youth Culture of Intense Experience, St. Lukes, London, UK, 2001

- ubiquity of access and use

It has also long been understood that information technology (and more recently interconnectivity) hold out two great promises for human activity – promises that are both purposeful and playful, and which enable both work and hobbies, passionate interests, and creative collaboration and entertainment.

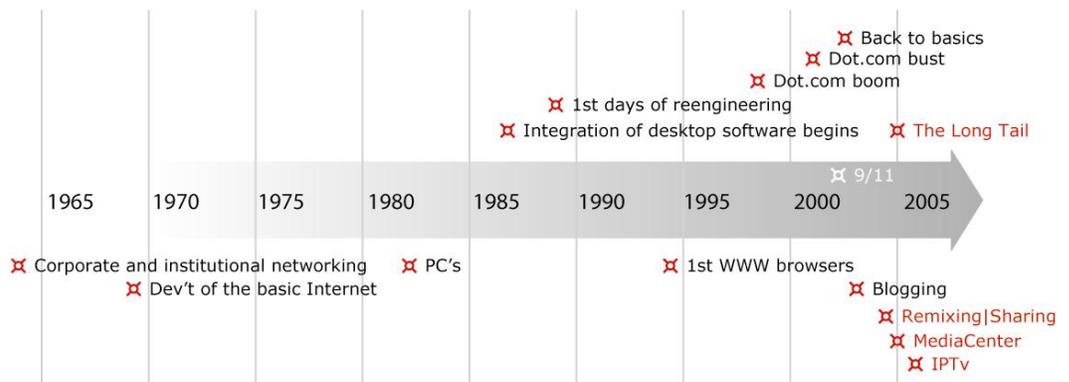
The first promise was a major increase in efficiency ... doing things more simply, more easily, and faster while offering greater combinations of choice, access and availability - mass customization² - at the same or reduced cost.

The second promise has been the long-predicted wave of socio-cultural impacts. The conditions in which (we) increasingly live arguably represent the first time on human history that humans have had their minds, needs and creative imaginations lined together in ways that allow them to collaborate, consume and construct in various combinations of “together”.

The tendency is to overestimate the impacts of change in the short-term, due to the details and structural dynamics of the systems in place ...and to underestimate the impacts of major change in the long-term, due to the accumulated compound and interrelated effects.

- widely used, multiple attributions

The diagram below shows in general terms some of the major socio-economic and socio-cultural markers related to the introduction, penetration and now pervasive influence of the Internet on our daily lives in western (and global) societies.



It takes a long time for change to happen quickly

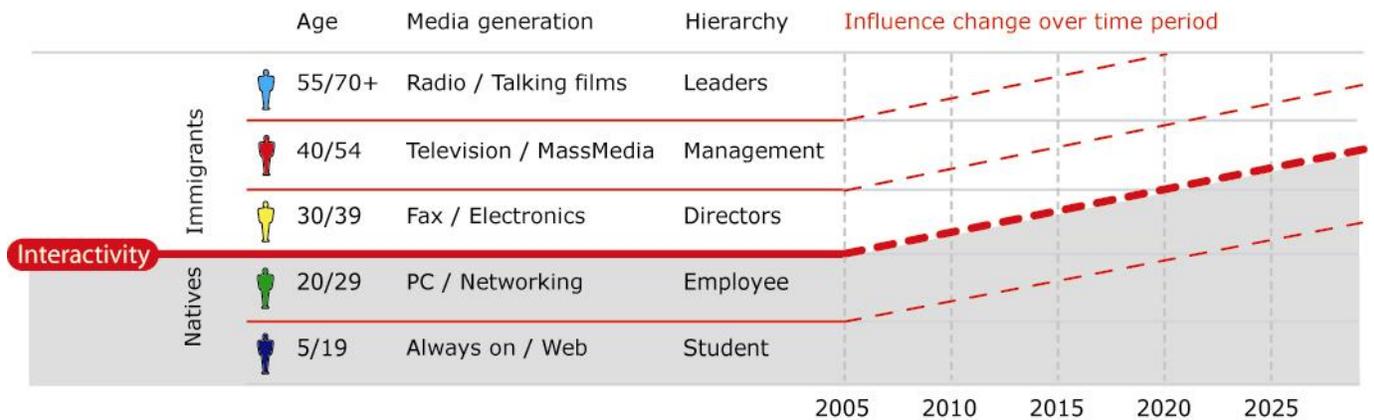
- Dr. G. Ross, McGill University Business School

² The principle of mass customization has been developed by academics Pine and Gilmore and Stan Davis, amongst others

Demographics ... then Sociology and Culture

One of the widely-acknowledged key drivers of fundamental change is demographics . Much has been made during the past two decades of the study and practical use of demographics, for policy-making by governments and to support economic investment and development theories and practices.

So too, the coming of the first-ever digital generations – digital natives, or Homo Zappiens (W. Vein) has been the subject of exhaustive study and speculation. The rapidly approaching demographic shifts are increasingly becoming a basis for economic models and market positioning of services.



It's clear that the digital generations use and experience different forms of input and activity and live and work differently than 50 year-olds do today, and that outside the big things like love, health, freedom and general physical security, often view life's challenges and rewards differently.³

We suggest that many of the developments of the past three or four years occurring at the intersection of technology and patterns of consumer and producer behaviour are beginning to integrate and converge. Changes that have been viewed as “on the horizon” are beginning to come together thick and fast, and are taking shape in important ways with respect to the purpose and scope of SAT's TOT initiative and the SAT Urban Hub.

³ SAT Urban Hub Presentation

3. The Platform ... Making It Happen More and Faster

Broadband – More, Faster, Cheaper

An essential core element – THE essential core element - in ensuring that this happens is the spread and availability of fast broadband access. According to Marc Canter, founder of the company that became Macromedia, and now CEO of Broadband Mechanics and a well-known authoritative figure on the future of media (he coined the notion and advises on business models regarding “digital lifestyle aggregators”⁴, current Internet access can be considered to comprise at least four distinct levels:

- Level 1 – up to 780 Kbps
- Level 2 – from 780 Kbps to 1 Mbps (Mid-band)
- Level 3 – from 1Mbps to 2.5 Mbps (Mid Broadband ... >2 Mbps begins to get services into homes)
- Level 4 - > 3 Mbps (true Broadband) ... with true FTTx high-speed broadband ubiquity of 1 Gbps service being the ultimate objective.

Availability of and access to broadband Internet connection continues to grow at a rapid pace in most parts of the world. Worldwide 123 m broadband lines were available at the end of the 2nd quarter of 2004, with the Asia/Pacific region accounting for 44% of the world’s broadband capability. The Americas account for 30.3% and EMEA (Europe, Middle east and Africa) account for 26%.

Availability is growing most rapidly in China, where almost 7 m broadband lines were added, 2.7 m of which were FTTx. As noted in the Point-Topic report (World Broadband Statistics, Q2 2004), “This number has even surprised local regulatory authorities in China”.⁵

The PriceWaterhouseCoopers (PWC) report titled *Global Entertainment and Media Outlook: 2004 – 2008* states that the media and entertainment industry is “undergoing a major change in the way people obtain entertainment”. The online distribution of content will be facilitated by rapid growth in the number of households that download content via a broadband connection.⁶

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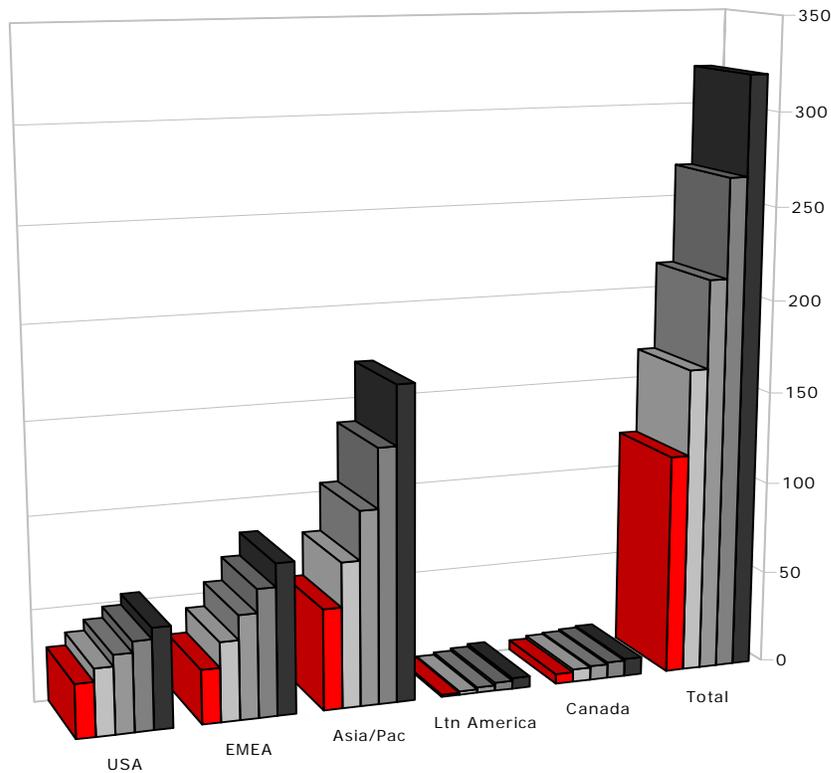
⁴ Marc Canter, Digital Lifestyle Aggregation, April 4, 2004

⁵ Point-Topic, World Broadband Statistics – Q2, 2004

⁶ Global Entertainment and Media Outlook: 2004 – 2008, PWC

Global Trends – Infrastructure and Network Growth

CHART 1 – GLOBAL BROADBAND HOUSEHOLD CONNECTIONS GROWTH 2004-2008
(MILLIONS OF LINES)



As the above chart shows, there are significant increases in the uptake of fast broadband Internet access forecasted for the four years globally, most notably in the Asia/Pacific region with steady strong growth also expected by the large EMEA region. Worldwide over the next five years broadband household connections will grow by a 31.3 % compound annual increase rate, to nearly 320 million.⁷

Each region of the globe is expected to continue growing, and increased capacity, expanded areas of access within each region and reduced costs will contribute to the scenario with which the PWC report concludes its general review of the spread and penetration of broadband availability and access:

While lower prices will play an important role in making broadband financially accessible to more people, underlying demand for broadband

⁷ Global Entertainment and Media Outlook: 2004 – 2008, PWC

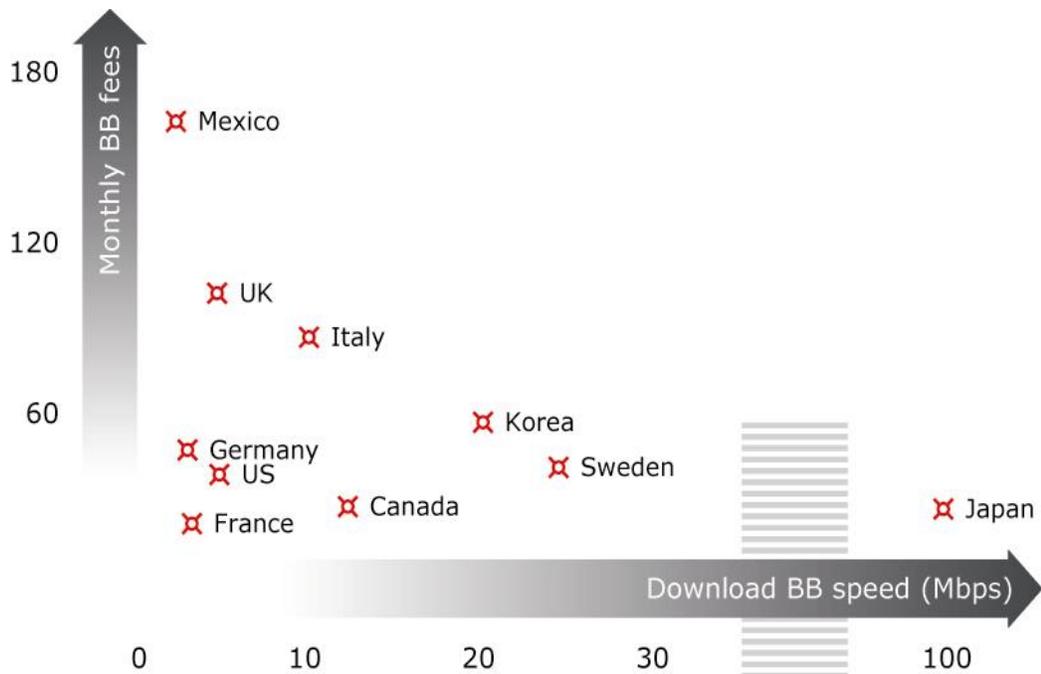
is what's fueling penetration. An important contributor to that demand is the growing availability of entertainment applications that benefit from a broadband connection. Music, video games, movies and books have become available online during the past three years, during which the expansion in the number of broadband households has accelerated. The entrance of more such services into the market will further stimulate demand for broadband. At the same time, rising broadband penetration will facilitate online distribution of entertainment.⁸

We believe this phenomenon is known as “a virtuous cycle”.

Towards a Ubiquitous Networked Society - An Example

Japan is seriously pursuing ubiquitous broadband access as a cultural and economic policy. A stated objective is to create **u-Japan** (an ubiquitous networked society). M. Tabata, Sr. Vice-Minister for Public Management, Home Affairs, Posts and Telecommunications states that one of the key goals of **u-Japan** is “A society where everyone/everything is easily connected to the network anytime/anywhere”.⁹

This graph portrays current costs in Japan for 1 Gbps broadband service. The **u-Japan** policy calls for this service to be available virtually everywhere by 2010.



⁸ Global Entertainment and Media Outlook: 2004 – 2008, PWC

⁹ Towards The Realization of a Ubiquitous Network Society, with OECD data – M. Tabata, Sr. Vice-Minister for Public Management, Home Affairs, Posts and Telecommunications, Japan

(Source – Towards The Realization of a Ubiquitous Network Society, with OECD data)¹⁰

As shown on the graph, a number of other countries have significant connectivity capability and capacity where the ratio of broadband speed and price-of-access combine to make a reasonable amount of capacity available to many citizens ... namely Sweden, Korea, Canada and Finland

It's clear that enhanced and less costly broadband access is a critical element of the equation regarding the rate at which the "virtuous cycle" operates to increase the range and scope of impact due to digital content and cultural transformation.

The following section examines the growth in mainstream entertainment and media markets, to provide a base point of growth assumptions. If there is substantive growth in mainstream markets, we believe that given the evidence it is appropriate to assume that the activity of digital cultural content creators and users in the Long Tail **(section ?)** will increase as much or more.

¹⁰ Ibid

4. A Cultural Transformation – Quantitative Review

Data and Trends – The Evidence

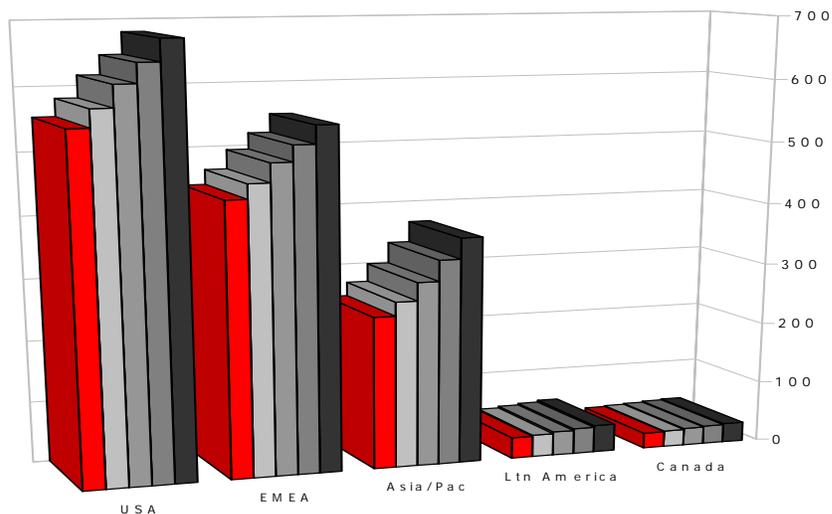
This section examines data regarding the scope and reach of the impacts we are beginning to experience due to the ongoing evolution of the Internet and the increasing availability of rapid access to the Internet.

The primary sources are the PWC study cited above, the Pew Internet & American Life Project, an authoritative study of usage patterns and their forward implications in key areas of socio-economic and socio-cultural activity, and a study of Global Broadband Availability Statistics from Point-Topic, a broadband consultancy, as well as snippets from several other key sources.

Each study offers an extensive body of data and understandings from its focus on key components of the major intersection of technical capability, consumption behaviours and emerging socio-economic patterns. The studies taken together offer a respectable backdrop for exploring the impacts of the new set of conditions offered by the Internet and the Web.

Global Trends By Major Regions

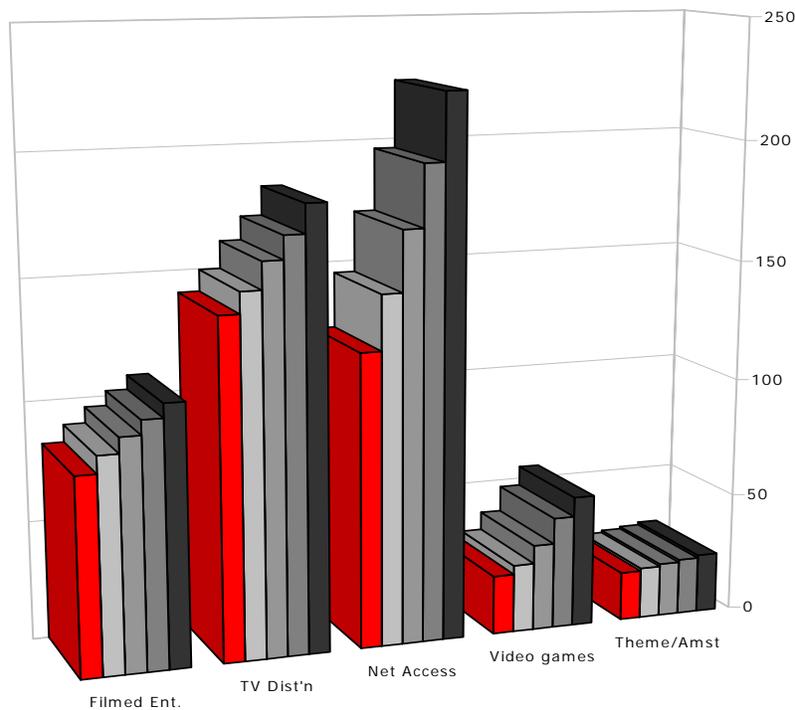
TABLE 1 –
GLOBAL ENTERTAINMENT & MEDIA MARKET (GEMMS) BY REGION – 2004 TO 2008 FORECAST
(US \$ - BILLIONS)



In aggregate, the data strongly suggests that Internet use in key areas will continue to grow, and that the types of activities envisioned and supported by SAT's mission will become increasingly valued and consumed by end-users.¹¹

This continued growth in the use of the interconnected digital infrastructure, enhanced by growing availability of high-speed broadband access and coupled with versatile, increasingly powerful and inexpensive software and hardware is leading us to new market dynamics known as the "Long Tail".¹²

GLOBAL ENTERTAINMENT & MEDIA MARKET (GEMMS) BY SEGMENT
(US \$ - BILLIONS)



To reinforce this key point, we have selected excerpts from the PWC report that consist of the forecasts for ...

- Filmed Entertainment
- Television Distribution – Cable, Satellite and Other
- Internet Access and Advertising
- Video games
- Theme and Amusement Parks

¹¹ Global Entertainment and Media Outlook: 2004 – 2008, PWC

¹² The Long Tail, Chris Anderson, Wired Magazine 12.10

The combined selected forecasts create a contextual quantifiable backdrop for assuming a basic “threshold” of growth in economic activity in the identified areas. We believe this selected combination of areas of activity provide a useful perspective on the probable growth in the development and consumption of digital content pertinent to SAT’s planned future activities.

Charts based on excerpts on these five areas from the PWC report, supplemented by a brief interpretive commentary, are presented for additional information in Appendix A.

5. Society, Culture and Economics – Re-mixing a Fundamental Transformation

Early Signs of Fundamental Transformation

Using the mainstream assumption that this “threshold” growth will continue for the next four years, let’s examine some characteristics of the socio-cultural and socio-economic evolution we’re witnessing.

The tectonic shift introduced first by personal computers and followed by the Internet and the Web caused some early socio-economic and socio-cultural markers to surface. Many have stayed with us, and are now evolving into new understandings and behaviours that include:

- a recognized shift in the nature of knowledge work
- casual dress norms in many workplaces
- 3 or 4 generations (with vastly different digital skills) in the workplace at the same time, with younger managers increasingly in power
- a widespread awareness of several/multiple transitions in many individuals’ lives
- a strong and growing emphasis on self-expression ... both in one’s own life and increasingly, at work
- sharp distinctions between ease in a digital world and those raised and educated in an analog, pre-computer-and-Web world
- the ongoing democratization of information ... hyperlinks subvert hierarchy (D. Weinberger et al, *The Cluetrain Manifesto*),
- individual empowerment and the anticipated rise of a Conceptual and Collaborative Age (*Revenge of the Right Brain*, D. Pink)

The dot.com bust of April-May 2001 was quickly followed by the events of 9.11.2001, which arguably resulted in a rapid and widespread clampdown in business spending, technological development and innovation and progressive social and cultural evolution. This stands in stark contrast to the immediate post-Web years 1995 – 2001, which was one of the more notable periods of open economic and social experimentation since World War II.

New Logic and New Models ...

By early 2002 there were a number of important early markers in place that indicate new services and models that are springing forth. Some of these markers are:

- the Napster P2P phenomenon, downloading music, music piracy, and new business models for the online music industry
- eBay, Amazon, Dell – emerging and now established business models based on mass customization and online community/sociological dynamics
- the ubiquitous presence and use of cell-phones around the world
- hip-hop music, DJ's as stars, re-mixing and the randomization of music
- Large and growing profile and impact of open source methods and approaches
- 2nd Generation business models – Netflix, Firefox, Brightcove IP TV, etc.
- Online grass roots organizing, fundraising and political activism – the Dean campaign, Rothergate, etc.
- The real, widespread and heavy impact of blogging on the mainstream media business and journalism in particular
- The growing recognition of new and fundamentally different skills and expectations in the generation we've called Homo Zappiens, or the increasing ranks of the Digital Natives¹³
- The ongoing and increasing digitization of vast amounts of creative and cultural content ... from libraries, photo collections and a range of different kinds of other archives
- The invention and rapid growth of new forms of copyright and content licensing such as the Creative Commons licensing scheme.¹⁴

Web 2.0 – An Operating Platform For Cultural Content

Now, we are being regularly reminded that the advent of what is called Web 2.0 (the World Wide Web as an “operating platform”) is upon us. There has been a widespread and vast combining of technical applications linked together in interoperable and complementary layers that collectively define “Web 2.0” – a place/space of functionality that people are recognizing as the operating platform for our economy and society. There are fundamental differences between Web 2.0 as an operating platform compared with any other technological infrastructure or cultural medium that has ever before been available to humans – notably in the sense that both the infrastructure and the medium facilitate, engender and reinforce participation and interactivity.¹⁵

The awareness and adoption curves that began in the early to mid '90's (almost 15 years ago) have matured to the point where applications and services that make it easy for users to carry out many forms of creative and collaborative activity are abundant and inexpensive.

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¹³ Homo-Zappiens – Research by Dr. W. Veen, Technological University of Delft, The Netherlands

¹⁴ <http://www.creativecommons.org>

¹⁵ <http://www.web2con.com/>

Highways and the Internet allow all user types to commingle. The emergence of highways empowered people to control many more aspects of their transportation needs rather than depend on the schedules and railroad routes available. The Internet accomplishes the same thing for communications. Automobiles and highways gave rise to an entirely separate industry and provided the basis for new types of commerce. The Internet offers the same promise, and corporate chieftains with traditional telecom assets find themselves in the same position as the railroad barons when Henry Ford got rolling.

Daniel Berninger, The Voice Over IP Insurrection¹⁶

In the decade since the Web has achieved mass critical awareness, successive waves of hyperbolic enthusiasm have greeted its inherent potential for creative and collaborative expression. At the same time, balancing this enthusiasm there have been an approximately equal proportion of naysayers who have suggested that nothing, or not much, has really changed. Rather, they suggest that business models, business logic and the way activities are organized may only need updating due to increased efficiency. They argue that the fundamental dynamics of human interaction (top-down, controlled and broadcast) are still firmly in place.

Which is more correct? There are effective examples wherein business logic and market dynamics have been deeply impacted, and other equally effective examples where long-standing principles have remained intact. However, it is not difficult to state that there is increasing awareness that as our experiences with technology and interactivity on the Web mature, there is increasing recognition that many important changes are now upon us, and lie in front of us, in the medium and long-term future.

The Influence of Open Source

Also during the past decade, the growth of open source systems and methods as a legitimate force has grown substantially. Open Source uses the distributive power of the Internet to tap into mutually shared desires and processes that

- share the goal
- share the work, and
- share the results

Open source dynamics have already spread to a significant range of other disciplines, from the hard sciences to the liberal arts.

“Open source can build around the blockages of the industrial producers of the 20th century,” says Yale’s Benkler. “It can provide a potential

¹⁶ The Voice Over IP Insurrection, Daniel Berninger, on Om Malik’s Broadband blog

source of knowledge materials from which we can build the culture and economy of the 21st century.”

.....

These early efforts are mere trial runs for what open source might do out in the world at large. The real test, the real potential, lies not in the margins. It lies in making something new, in finding a better way.

Open source isn't just about better software. It's about better everything.”

Open Source Everywhere, Wired 11.11¹⁷

A Potent Combination - Greater Internet Access, New Logic & Models, Web 2.0, Open Source

All of these components at the intersection of the evolution of technology and the cultural shifts associated with a new set of conditions and demographics add up to a potent and powerful force. Within the past year an innovative conception of how markets for digital goods and cultural entertainment-based content has been introduced and much analyzed - The Long Tail.

Understanding of what it is and why and how it operates will help establish that a new environment does exist at the intersection of technology, economics and society, and that it is supporting a major mutation in the way cultural content is produced, delivered and used.

Addressing this cultural mutation, modeling it, and seeking ways to provide benefit to the creative, artistic and cultural communities in Montreal, and in collaboration with partners across Canada and around the world, are the key elements of the purpose and mission of SAT and its TOT project.

¹⁷ Open Source Everywhere, Wired Magazine 11.11

6. The Long Tail

Many Conversations, Many Markets

The various combinations of talent, capability, creative research and production, human behaviours and the emerging principles of a digital world have recently created the rapidly-growing awareness that markets for goods and services are shifting – from planned, targeted mass campaigns to an attraction-driven, conversations based set of dynamics.

Markets are conversations. More conversations, shared in more ways, amongst small groups of like-minded people equal (many) more smaller and tightly-connected markets

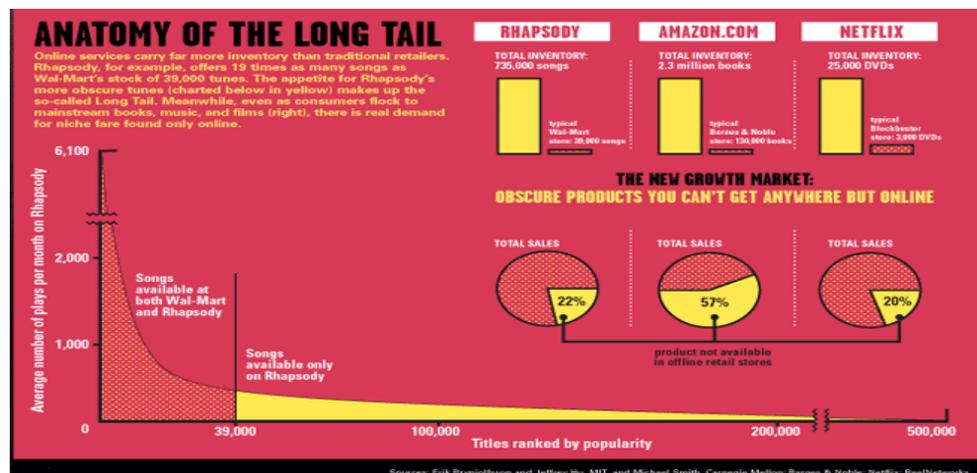
– *The Cluetrain Manifesto*¹⁸

Markets enabled by accessible interfaces that search for content and distribute it instantly over the Internet are becoming markets that demonstrate the characteristics, conditions and dynamics of the bazaar, the word-of-mouth and attention-and-attraction and network-driven means of connecting with customers and audiences (ref. Business Week article *The Vanishing Mass Markets*).¹⁹

The frame of reference and dynamics of the Long Tail, and their implications, were crystallized in December 2004 by Wired magazine’s Editor-in-Chief (and patron of the famous TED conferences) Chris Anderson, in a seminal article titled The Long Tail.

Forget squeezing millions from a few megahits at the top of the charts. The future of entertainment is in the millions of niche markets at the shallow end of the bitstream.

- *The Long Tail, Wired 12.10*²⁰



²⁰ The Long Tail, Wired Magazine 12.10

The Long Tail is most evident in areas of activity involving digital content. Widespread access, much greater ease in creating content and the ability to remix, store, share and combine digital content, is clearly leading to new market dynamics and new opportunities to access and serve many small niche markets. The physics (or lack thereof) of packaging and distributing digital content have made a potentially limitless amount of content available for individuals and markets, to serve a potentially limitless range of interests.

Internet meets home cinema, TV and surround sound

Here's an example of inexpensive effective technology built to meet the growing availability of a wide range of digital content. The D-link *medialounge* wireless media player recently won the "Innovations 2005 Honoree" award for the Integrated Home Systems Category at the International CES Innovations 2005 Design and Engineering Showcase.

*"Once connected to your home network, the DSM-320 accesses PC stored media content to play digital music on your surround sound system, watch your home movies and display a slideshow of your photos all on your big screen TV."*²¹

The D-link medialounge wireless media player, installed in a home entertainment center:

- Streams media content of all sorts from your PC to your TV
- Installs easily, in minutes, with plug-n-play wireless connectivity
- Uses the ubiquitous 802.11g high-speed wireless standard
- Has an attractive slim-line design that fits seamlessly with the other components of most home entertainment centers
- Costs US \$ 189

Dozens of these devices have been introduced over the last twelve months. Microsoft's PlayStation has a wireless media player plug-in available, iPod has one who can transmit your MP3s to your FM Tuner. It seems clearer and clearer that the long-predicted impacts of Moore's law (the rate of increased power of chips) are becoming apparent, and accessible to the masses. Bringing all this computing power, storage capacity, and interoperability designed for ease of use into the home will only facilitate and reinforce the demand for all sorts of digital content, and accentuate the dynamics of the Long Tail.

²¹ D-link Wireless Media Player, <http://www.dlink.com/products/?pid=318>

Rapid Integration & Expansion in Home Entertainment PC

The major software vendors, chip and computer makers – Microsoft, HP, Dell, Intel, Motorola, Sony, Toshiba, etc. - are working overtime these days to develop attractive, inexpensive, powerful and versatile home media PC's. They know what's coming, and the time for addressing this next wave appears to be now and for the next five years or so. According to the web site IT Facts (www.itfacts.biz), which tracks virtually all types and elements of information appliances ...

Home computers specifically designed for entertainment applications (so-called Media PCs) will account for 40% of home computer sales by the end of 2008, according to Parks Associates. This new report indicates that net additions of media-PC hardware units and software packages will reach 7 mln U.S. households, approximately 20% of all U.S. households, in 5 years. Sales of specialized home networking equipment for PC-to-CE connectivity will similarly grow, surpassing 21 mln units shipped by the end of 2008.²²

Will effective, easy-to-use and appropriately priced technology in the home increase the demand for, and use of digital content? If the experience available by watching the rise of music downloading, the success of initiatives like Netflix, the current pressures on copyright and intellectual property law, and the current enthusiasm for services like Brightcove and BitTorrent for video, downloading, creation re-mixing, editing and publishing are any guide, we are only at the very beginning of major transformation in the creation, use and distribution of digital content.

New Digital Content distribution Model

"Content owners, video rights-holders and independent producers will get an empowering new direct-to-consumer distribution channel, creating more flexible business models and a greater share of the profit margin than they can achieve from traditional distribution channels. Viewers will get access to an online service that offers new levels of control over their use of video and television."²³

Brightcove's offer to customers for its Web service couldn't be clearer. Create what you want and can, and we'll help you store, remix and use what you want how you want ... and make it easy to find and download from anywhere around the globe. So now, if you combine a media PC, a networking interface and a TV : Is'nt this a homemade on demand TV or is Brightcove only electronic shelvings for digital media mixed with eBusiness?

²² Item from Home Entertainment section of www.itfacts.biz

²³ Brightcove mission, www.brightcove.com home page

That, in short, is a brief glimpse at the Long Tail ... and it appears that the recognition of and access to its abundance is the way of the near future.

The next section looks at the patterns of social behaviour that a number of Internet experts and socio-economic analysts perceive are likely to unfold over the next ten years, as better, faster and cheaper access to the Internet, and greater numbers of people around the world become more familiar with and use available tools to create, share and use the Internet to read, view and use cultural content.

7. Forward Predictions To The Year 2014

The Pew Internet & American Life Project (www.pewinternet.org) is one of the more ambitious and widely cited ongoing survey projects depicting and analyzing the impacts of the interconnected digital infrastructure of the Internet on life, work and society. It *“produces reports that explore the impact of the Internet on families, communities, work and home, daily life, education, health care, and civic and political life. The Project aims to be an authoritative source on the evolution of the Internet through collection of data and analysis of real-world developments as they affect the virtual world.”* (Pew Internet & American Life Project)

One expert wrote, “Digitization and the Internet make for a potent brew. Look for continued disruptive change from the new reality of digital photography, digital music, digital video, digital ‘film’-making, digital television, digital news, digital books, etc. TiVo kills the commercial television format. Napster, Kazaa, and iPod kill the ‘album’ format. In the future, everyone will be famous for fifteen minutes in their own reality show.”

Another wrote, “The area that will change the most will be arts and entertainment. The ability to receive real-time music and video over the Internet, or downloaded content, will radically transform business models for TV and movies as it is already doing for music. It also will continue to change the relation of the public to artists as it has through fan sites, remixes, and other internet-based phenomena.”

Introduction to Predictions, Pew Internet & Family Project²⁴

The following predictions are summary conclusions developed from the response rates to the Pew survey and the commentary offered in interviews carried out as part of the survey. While the predictions are bold and far-reaching, it should be noted that the perspectives offered are, while based on clear majority positions, not unanimous.

Additional perspective for each prediction is offered in the notes cited at the end of each prediction, attached to this paper as Appendix B.

Prediction: Pervasive high-speed information networks will usher in an age of creativity in which people use the Internet to collaborate with others and take advantage of digital libraries to make more music, art, and literature. A large body of independently produced creative works will be freely circulated online and will command widespread attention from the public. Expert Agreement 54% (Note 1)

²⁴ The Future of the Internet Survey, Pew Internet & American Life Project

Prediction: By 2014, 90% of all Americans will go online from home via high-speed networks that are dramatically faster than today's high-speed networks. Expert Agreement 52% (Note 2)

Prediction: By 2014, all media, including audio, video, print, and voice, will stream in and out of the home or office via the internet. Computers that coordinate and control video games, audio, and video will become the centerpiece of the living room and will link to networked devices around the household, replacing the television's central place in the home. Expert Agreement 53% (Note 3)

Prediction: By 2014 use of the Internet will increase the size of people's social networks far beyond what has traditionally been the case. This will enhance trust in society, as people have a wider range of sources from which to discover and verify information about job opportunities, personal services, common interests, and products. Expert Agreement 39% (Note 4)

Prediction: In 2014, it will still be the case that the vast majority of Internet users will easily be able to copy and distribute digital products freely through anonymous peer-to-peer networks. Expert Agreement 50% (Note 5)

Prediction: By 2014, as telework and home schooling expand, the boundaries between work and leisure will diminish significantly. This will sharply alter everyday family dynamics. Expert Agreement 56% (Note 6)

8. Summary and Conclusion

There is a clear consensus available in the Pew Internet & American Life Project that a significant amount of massive change is yet to come associated with the digitization, copying and sharing of content enabled by a high-speed, broadband enabled Internet reaching into homes around the globe.²⁵

It also seems quite clear that the effects of living and working in this new set of conditions is leading to real possibilities for major change to the dynamics and economics of software and technology being applied to the creation of cultural artifacts, goods and services.

Let's summarize these major one-decade-from-now predictions:

- 1 High-speed broadband access will enable an era of creativity and collaboration
- 2 A decade from now the critical mass of users will have faster better Quality of Service internet connectivity
- 3 The content we use will be streamed, linked and shared in many different forms of wired and wireless networks
- 4 Humans operating in connected electronic networks will be commonplace
- 5 P2P downloading, copying and sharing will still be a widespread practice
- 6 The lines between work, play and entertainment will have blurred considerably.

With the backdrop of SAT's mission and reinforced by its growth and success over the past 8 or 9 years, even a casual review of these 6 predictions suggests that SAT is extremely well positioned to support and facilitate the experimentation and work of creative individuals and groups of creators – in Montreal, nationally, and in partnerships, networks and consortia around the globe.

The sister report on the SAT Urban Hub will delve into the emerging socio-economic transformation associated with the creation of goods, services and cultural patterns in a more interconnected, networked and “open” environment.

The spread of new technology, new integrated software and digital appliances, and the increasing spread of high-speed broadband access has grown to the point where it is considered as a core component of policy or approach in many types of organized activity. It is obvious that the ways that the various constituents respond – the Governments of Quebec and Canada, the universities, creative individuals and collaborative networks, rural and urban community development initiatives – will make a crucial differences in the years to come as the predictions above, borne out of the new set of conditions – interconnected, interlinked, digital, conceptual, shared – take shape.

The infrastructure is now in place. The opportunities are there. The time is now.

²⁵ The Future of the Internet Survey, Pew Internet & American Life Project

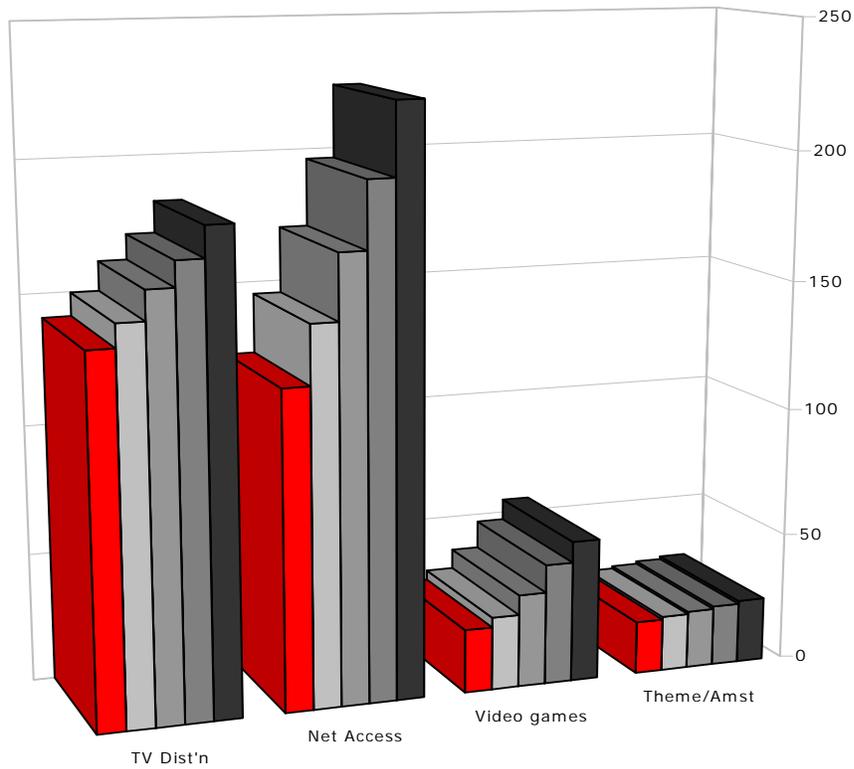
Appendix

Appendix A

Selected Charts from the PWC Report Global Entertainment and Media Outlook: 2004 – 2008 – Global Overview and Commentary

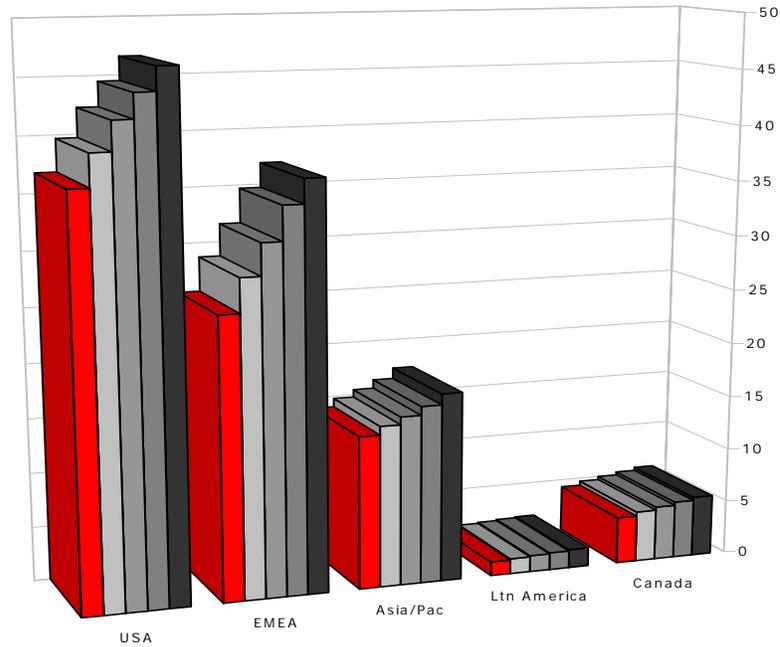
In this appendix, a brief commentary indirectly relating to the SAT's overall mission accompanies each chart. This section's combination of mainstream forecasts by a major consultancy and predictions from a comprehensive ongoing examination of the observable impacts of behaviour patterns in an interconnected wired world will set the stage for our perspectives on an a global environment where open source capabilities and dynamics fit together with the philosophy and mission of SAT's Open Territories project.

**Chart 1 –
Global Entertainment & Media Market (GEMMS) By Segment
(US\$ - Billions)**



Each of these segments shows steady growth for the next four years, with access to the net and video game consumption showing the greatest rates of growth, a sign that digital natives are starting to have influence. It is reasonable to assume that a steadily increasing proportion of the growth in Internet access will be broadband-based. It is useful to note that there is still significant growth anticipated in the uptake of Internet access. It's likely that an increasing proportion of that access will be high-speed broadband access as and when it becomes available.

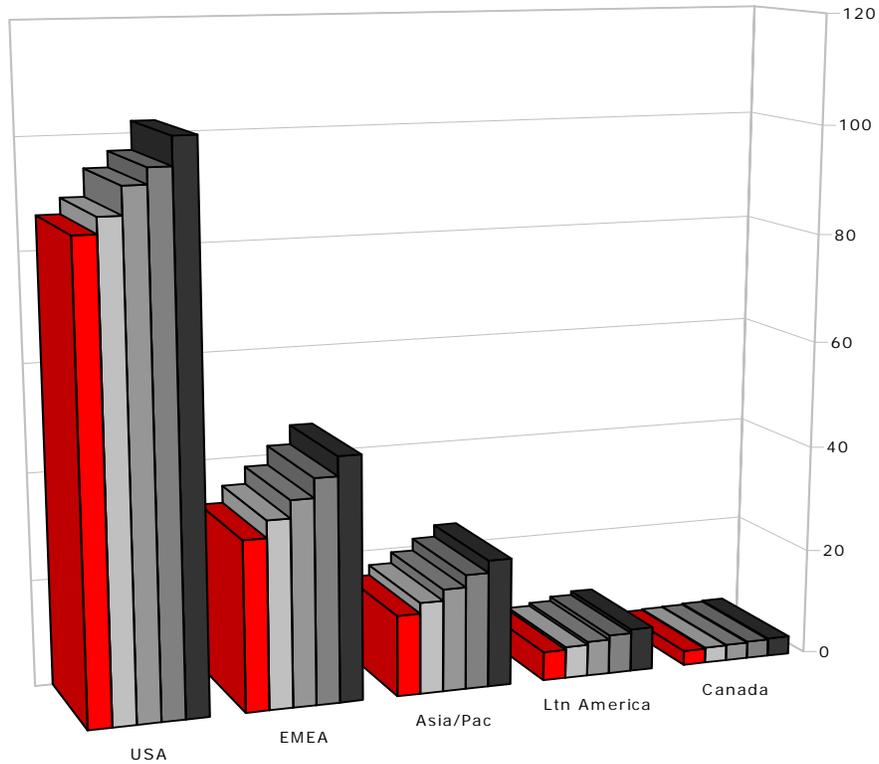
**Chart 2 – GEMMS by Region – Filmed Entertainment
(US \$ - Billions)**



Filmed entertainment can logically be considered one of several key barometers for the content industry in general, although statistics such as these do not cover well much the emerging independent/small producer activity that we have suggested is part and parcel of the Culture 2.0 transformation. The forecasted growth is steady in all regions and aggressive in both the USA and the EMEA region.

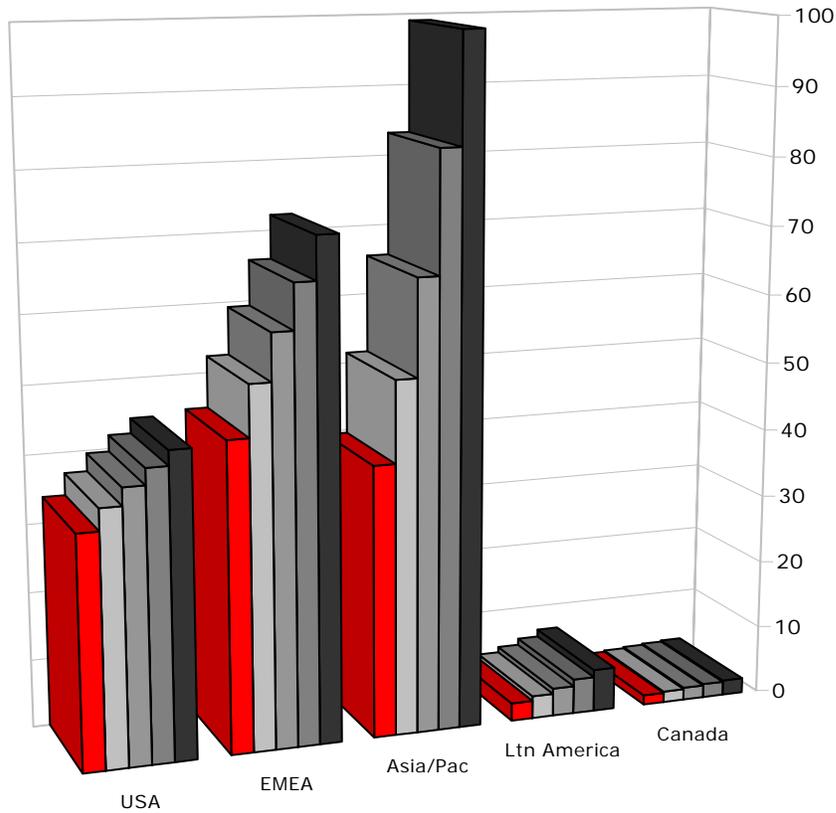
There are clear indicators – notably the growth in niche channels, reality TV and innovative new services such as Brightcove.com and Ourmedia.org - that the emerging combinations of less expensive, higher quality equipment, more sophisticated and easier-to-use software and tools like personal media servers will also create ongoing rapid growth in alternative sources of digitally-created filmic entertainment sources.

Chart 3 – GEMMS by Region – TV Dist’n: Station, Cable, Satellite (US \$ - Billions)



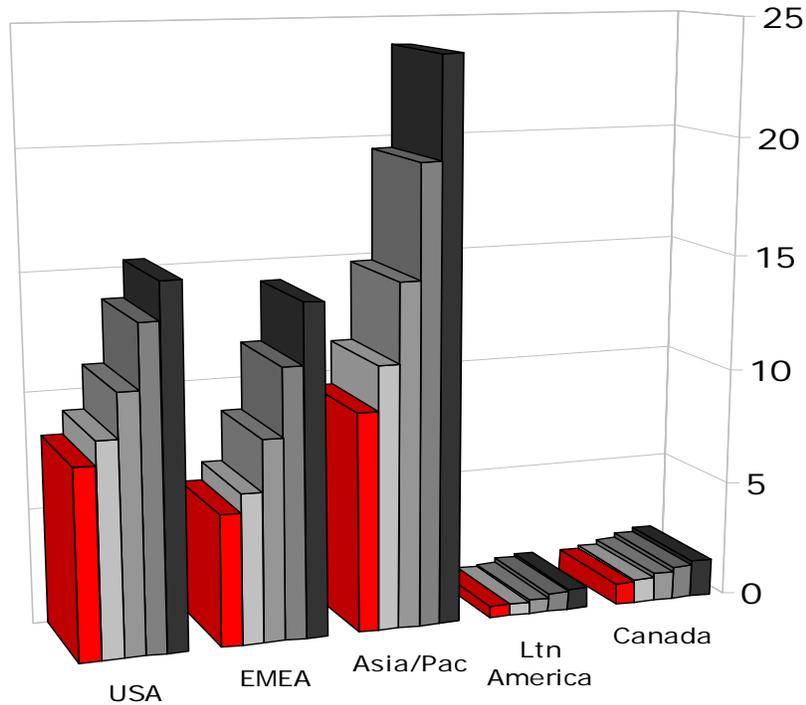
Television distribution is likely to experience significant impacts related to the convergence of video streaming, the popularity of reality TV, and the increasingly widespread recognition of the viability of niche channels. The USA has long been the leader in the trends for television production and distribution and will continue in this role.

Chart 4 – GEMMS by Region – Internet Access Spending (US \$ - Billions)



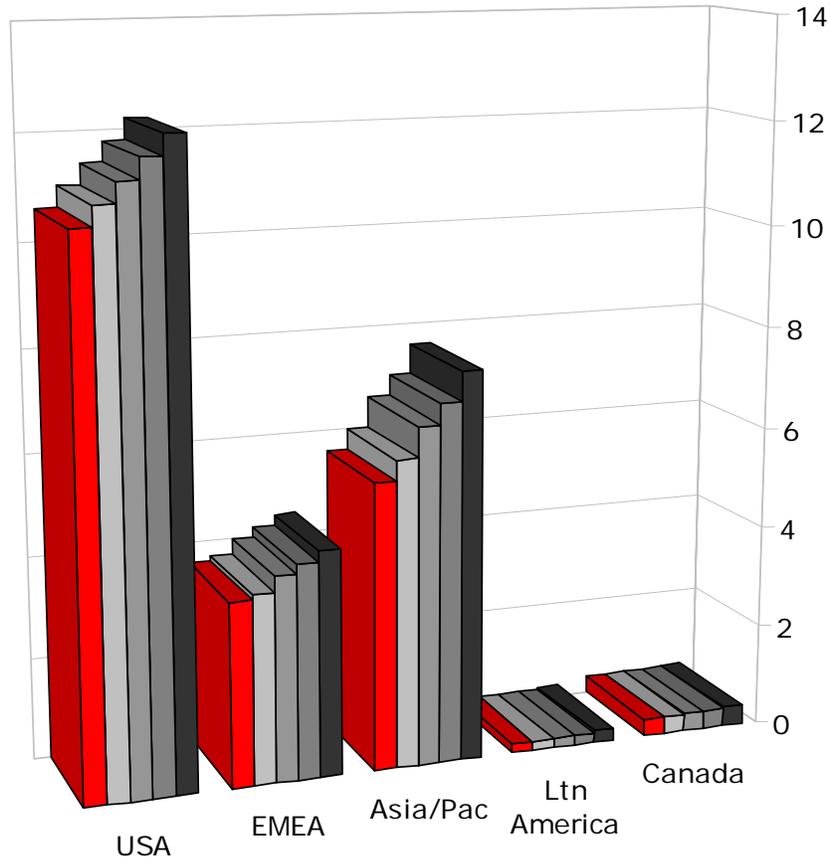
This chart serves to reinforce the point made earlier in this paper concerning the continued growth of Internet access – that it continues to grow rapidly around the world. It's useful to note that Canada is one of the more “wired” countries in the world, has a relatively small population where many people have been connected for a reasonable length of time, while growth in Internet access may be slower than in many other parts of the world, a reasonable number of Canadians may be getting ready to upgrade or migrate to more sophisticated levels of Internet usage. This will be supported by likelihood that the costs of access will remain relatively low in Canada.

Chart 5 – GEMMS by Region – Video Games



Video games have been one of the controversial success stories of the digital age for the past ten years, and have grown into a substantial industry. As the projections on the chart show, there is a strong likelihood that growth in this area will remain strong, a perspective that is corroborated by many reports that people who began gaming as children or young adults continue playing games on into adulthood. This phenomenon fits squarely with, and underscores, the notion that the digital generations are wired for immersive, sensation-based interactive experience. Interestingly, there have been a considerable number of successful Canadian companies in this area such as Electronic Arts, Radical Entertainment, Discreet Logic and several others.

Chart 6 – GEMMS by Region – Theme & Amusement Parks



Moderate but sustained growth is projected in this area of activity for the next five years, most notably in the USA and in the Asia/Pacific region. Generally, this area of activity fits in many ways with gaming and the overall trend to immersive, experience-based entertainment. Video-based content, music and other types of interactive digital content enabled and delivered by various forms of versatile software and hardware will increasingly be used to enhance and deepen customers' experience while using the services provided at theme-based and other forms of amusement parks.

Appendix B

Notes re: Pew Internet & American Life Project

Note 1

According to a December 2004 report by the Pew Internet & American Life Project, artists and musicians have embraced the internet as a tool to improve how they make, market, and sell their creative works. They use the internet to gain inspiration, build community with fans and fellow artists, and pursue new commercial activity. (See also the PIP Special Report on Artists and Musicians).

Note 2

According to the February 2004 survey of the Pew Internet & American Life Project, 34% of all adult Americans have access to broadband either at home or in the workplace. Much of the growth in broadband adoption at home is attributable to users' unhappiness with the dial-up doldrums – that is, people growing frustrated with their slow dial-up connections. Price of service plays a relatively minor role in the home high-speed adoption decision.

Although slightly more than half of experts agreed with this prediction, few were specific in their responses about why they think high-speed access will roll out to most homes by 2014. Many seemed to aspire to these heights of connection, citing more hopes than facts. As one expert wrote, "Yes, but 90% isn't good enough. We must do away with the digital divide entirely if we are to become a truly advanced culture.

Note 3

Many experts believe that a media convergence is imminent, but most of those who agreed with the premise of the prediction added caveats and elaborations. A number of experts protested that all these media toys will be available, but only to an elite group. One expert represented the most optimistic observers, writing, "The internet is becoming 'data electricity' and increasingly is the conduit by which information and entertainment enters the home and is enjoyed and shared with others inside and outside the home. This will probably happen before 2014."

Gary Bachula, a technology development leader, most recently at Internet2, also thought ten years was too long a timeline, unless the "digital rights management cops" put an end to the fun. He wrote, "Eventually, every thing digitized in the world (movies, music, books, newspapers, etc.) will be available from the network through peer-to-peer like networks. The net will become a giant TiVo, and will have every song, every movie, every TV show (from some point on), every sports game, every news broadcast, ever created. People will obtain it over the net – and send it within their homes wirelessly to devices that are hybrids of what we call computers and televisions today."

James Brancheau, a vice president at GartnerG2 analyzing the media industry, wrote, "Media access won't be exclusively through the internet; it will include many types of IP

networks including private (e.g. cable, satellite) and public networks (e.g. datacasting, fixed wireless). TV will lose time share to the media PC and media appliances, but it will remain central to mainstream households. The tipping point away from TV will be further down the road, perhaps closer to 2020 when our 24-year olds turn 40.” Another expert echoed these ideas, writing, “I agree with the streaming and beaming of all media, but I do not agree that it will center on the new ‘hearth’ of the home. I believe media will be small, personalized, and wearable. We might connect to a display system periodically, but it is more likely to be impromptu small gatherings – decentralized use throughout the home.”

Note 4

A majority of those who responded to this question have serious doubts whether people can really handle larger social networks, whether those networks will be meaningful even if they do expand, and even about the virtues of expanded networks. Early in the history of the Internet, the first big mailing list on science fiction was created and users’ online conversations turned from shared research to shared interests. Any sense of idyll was quickly broken, however, by the first off-topic and unsolicited messages, later dubbed “spam.” Perhaps this pattern of connection and intrusion inspired the mixed reactions to this prediction about the power of online social networks – very few experts agreed with this statement without qualifications.

Note 5

The Pew Internet & American Life Project reported in January 2004 that the percentage of online Americans downloading music files on the internet plunged after the Recording Industry Association of America began filing suits in September 2003 against those suspected of copyright infringement. The number of music downloaders has rebounded to some degree in the past year. In previous research, file swappers seemed indifferent to the copyright status of the music they were sharing and downloading. But the country has gotten a crash course on copyright in the past year and a lot of people who trade files online may believe now that indifference to copyright law is a much more risky attitude.

Internet experts were divided into four different camps when it came to the future of digital property rights: philosophers, pragmatists, hacker devotees, and skeptics. Again, while it might appear from the survey data that there is solid agreement among experts on this assertion, it is more appropriate to say that the expert community is very sharply divided and uncertain about the future of shared digital products.

The philosophers felt that society will change to accommodate the new realities of file sharing. Stanley Chodorow, a historian and university administrator, wrote that, “Over time – longer perhaps than the 10 years asked about in the survey – people will begin to see the Internet as part of society and not as a wild territory beyond civilization where anything goes. As that change of view occurs, people will begin to obey rules that will reduce substantially the theft that goes on now.”

Ted Eytan, medical director of the Web site for Group Health Cooperative, agreed, citing historical precedent: “Like the sheet music industry in the early 1900’s, a new generation of users will grow up in an area of digital rights management and a new norm of not sharing copyrighted material.” A third expert envisioned a different future: “Millennials [children currently in elementary and secondary school] will be so computer/network

savvy and so inter-dependent with one another that they will, without hesitation or conscience, share everything.”

Note 6

Home broadband users and teenagers may represent leading indicators for what the future holds for the intersections of work, school, and home life. For example, Internet users who have added a fast connection at home say they are more likely to telecommute. A home broadband connection also appears to make it easier for family members to share access to the computer and the internet. High school students see the internet as a virtual textbook and reference library, a virtual tutor and study shortcut, a place to conduct virtual study groups, a virtual locker, backpack and notebook, and as a virtual guidance counselor when they are deciding about careers and colleges. Since most of the respondents to this survey are elite “knowledge workers” with fast connections to the internet at home and at work, many shared personal stories about what a difference the internet has made in their own working lives.