Hold My Hand

Annual Trends Report in the Audiovisual Industry

January 2019

Canada Media Fund
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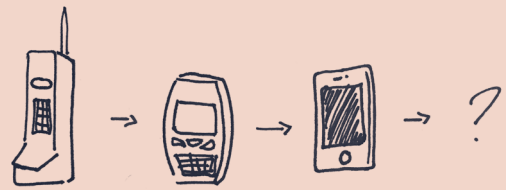

With each new round of technological transformation, the old familiar ways are falling away. They are being replaced by new opportunities that spring up regularly as a result of the constant upheaval – an instability that leads to experimentation and new ways of creating and distributing content. The year 2018 was marked by the evolution of how we relate to technology through a diverse range of events.

Innovation does not always translate into invention, but also to adaptation when it comes to different types of transformation. We continue to search for ways to coexist and co-create with the machines upon which we rely. Although our honeymoon with Silicon Valley is now well in the past, what has followed it is a new insight into the use of technology.

So, we continue our ambivalent relationship with the screens and devices that crowd our daily existence and force us to face our contradictions. Indeed, even if we are more concerned than ever about the use of our personal data following a succession of scandals, we still resist changing the habits we have developed – immersed as we are in this era of hyperconnectivity. What if overexposure to our devices was rather the saturation of a certain type of use?

Technology has long been blamed for being a divisive force, but some experiments highlight its uniting nature: virtual reality is being used in public spaces, smart speakers are making our homes interactive, and "edutainment" products are being increasingly used in a variety of learning environments. Opportunities will abound for creators of interactive experiences in this era of experimentation.

New alliances, new collaborations, new opportunities—we're here to help you navigate through it all! We are calling this report *Hold my Hand*, because we're all in this together and no one can pretend to go through any major transformation on their own.

Catherine Mathys
Director, Industry and Market Trends

This report offers a few figures related to the development of the Canadian industry and a trend analysis divided into four chapters: technology and innovation, media consumption, evolving business models, and markets and competition.

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Media Consumption Habits of Online Canadians Aged 16-64

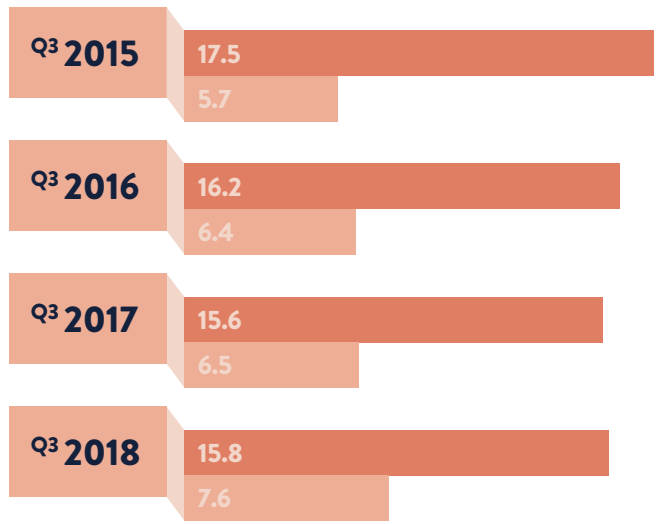
Internet users only.

TV consumption

Linear

Online

Hours/week, decimal



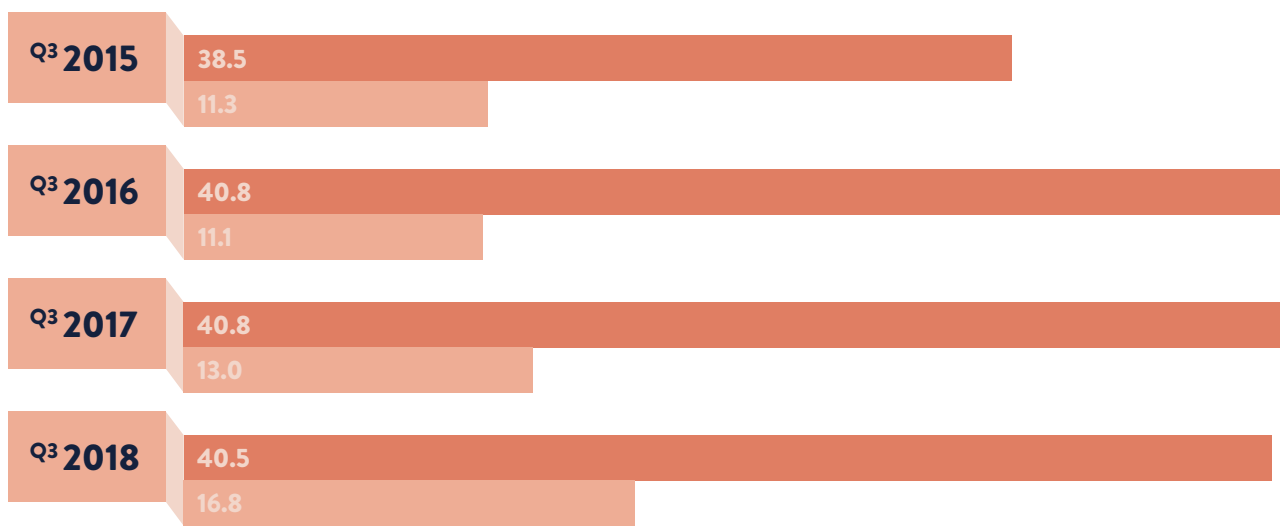
Time spent online

All activities

PC/ laptop, tablet and mobile combined

Mobile only

Hours/week, decimal



Media Consumption Habits of Online Canadians Aged 16-64

Internet users only

Device penetration rates

Q3 2018

Smartphone
89.1%

PC/Laptop
82%

Tablet
50%

TV streaming stick
20.7%

Game console
39.5%

Smart TV
37.6%

VR headset
4.5%

e-Reader
14.4%

37%

have used a smart assistant/speaker (e.g. Amazon Echo, Google Home, Apple HomePod) or plan to purchase one in the coming months.

Over-the-top television (OTT) services used to watch video content

Q3 2018

Percentage of respondents

The Canadian Media Market

Broadcasting distribution undertakings (BDU)

Subscribers (thousands)

Revenues ($M)

	Subscribers (thousands)	Revenues ($M)
2013	11,440	8,794
2014	11,296	8,930
2015	11,147	8,919
2016	10,907	8,740
2017	10,703	8,538

Internet service providers

Subscribers (thousands)

Revenues ($M)

* Not available in CRTC's Communications Monitoring Report 2018 (2018-11-01).

	Subscribers (thousands)	Revenues ($M)
2013	11,251	7,725
2014	11,630	8,414
2015	12,019	9,249
2016	12,301	10,178
2017	N. D.*	N. D.*

Average monthly price of communications services in Canada

Urban centres

Rural communities

	Urban centres	Rural communities
TV	$26.64	$29.54
Wireline telephone	$32.67	$31.95
Internet	$72.55	$79.89
Mobile	$70.12	$70.06

2017 combined average price in Canada

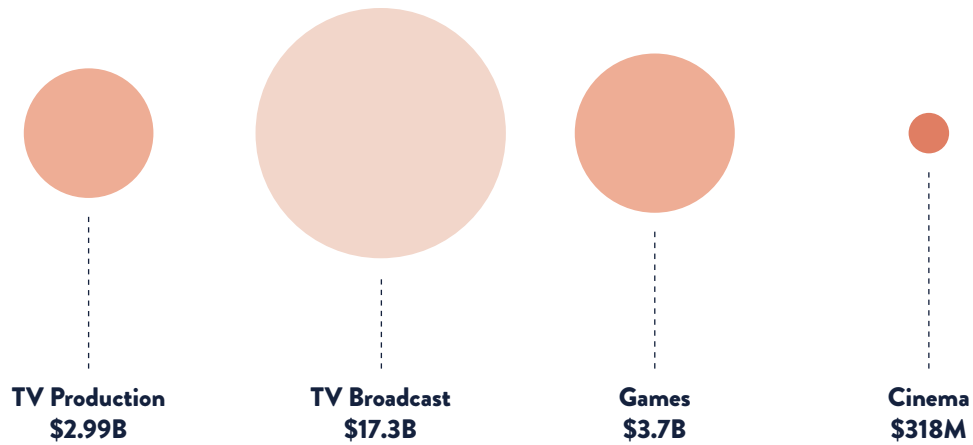
207$

(-1.6% from 2016)

The Canadian Media Market

Size of main screen-based economies

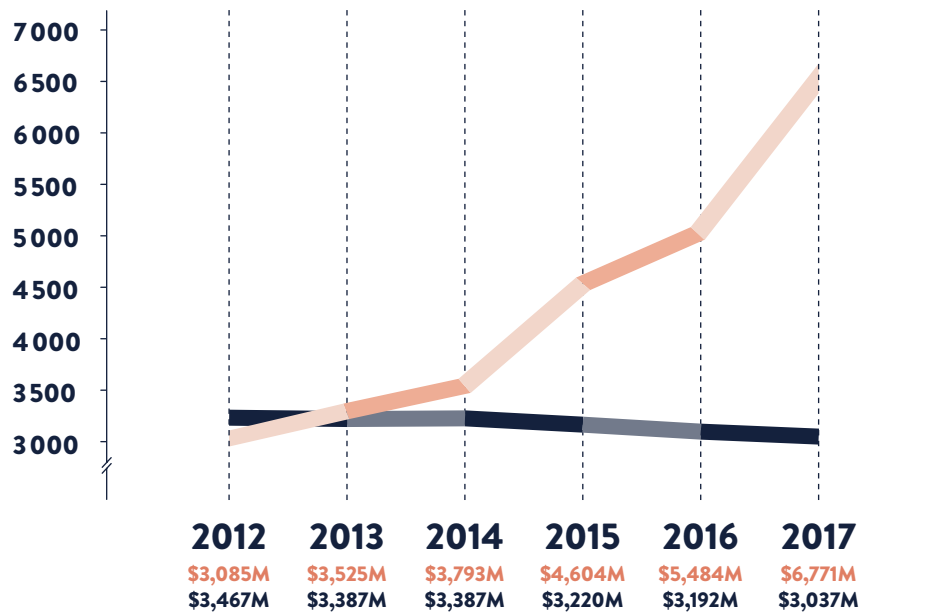
2018



Advertising spending in Canada

Internet

TV



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Artificial intelligence and the creative process

The creative process and human history are closely connected. Humans express their creativity by bringing to life what can be imagined. It would nonetheless seem that machines are capable of a certain form of creativity as well.

The question of machine creativity is nothing new. During the last 50 years, all manner of experimentation has taken place. However, 2018 will be remembered as a year when this question was at the forefront, as important developments in the field were achieved. How should the audiovisual industry respond to these developments in the medium to long term?

Whether related to still images, moving images, or sound, current experimentation is triggering a redefinition of the boundaries of creativity, both human and machine, and inciting us to work collaboratively. Consumers can already take part in the momentum building around explorations in co-creation through interaction with smart speakers. Could this be the first steps toward a democratization of these processes?

The boundaries of creativity are becoming blurred

The first auction of a painting produced using artificial intelligence (AI) rekindled the debate surrounding the role of technology in creation.

The Portrait of Edmond de Belamy was created by French art collective Obvious using a GAN (generative adversarial network) algorithm inspired by a database of 15,000 canvases painted between the 14th and 20th centuries.

Like all others created using GAN algorithms, this work is part of a new approach that applies artificial intelligence to art. In the past, an artist would program a computer based on a desired result. Today, thanks to machine learning, we can reference thousands of examples of a certain kind of work to train an algorithm to generate new works based on the same aesthetic codes.

Although we may be tempted to believe that a computer can create on its own, it actually still requires human intervention, as points out Ahmed Elgammal, director of Rutgers University's Art and Artificial Intelligence Laboratory. Humans choose the examples of artworks that allow the algorithms to "learn." In the case of the *Portrait of Edmond de Belamy*, the result is a portrait inspired by the classical forms used as examples. An additional human intervention is needed to categorize the results and establish which are the most appropriate.

So, is it really art? For Elgammal, there is no doubt that the artistic value lies more in the process than in the final result. All choices, human and non-human, lead to a result that is considered art. And who is the artist: the human who programs the computer or the machine that generates a new image based on past examples? Incidentally, in the case of the *Portrait of Edmond de Belamy*, the artist Robbie Barrat maintains that he developed the algorithm and the examples used to generate the work.

Machines refining the art of storytelling

A team of researchers at the University of California, Santa Barbara recently developed a neural network capable of generating abstract stories from photo streams. The artificial intelligence they developed is able to make inferences based on a proposed image and go beyond simple description. Additionally, the AI can imagine a story that is not immediately evident when considering the image. According to researchers, it passes the Turing test three times out of five, meaning that it is impossible to determine if the work was generated by a human or a machine.

It bears repeating that this technology is still in its infancy: it cannot equal the human imagination in the telling of complex stories. However, future developments—such as a better understanding of human social structures—could change things.

Machine-made images: from still to moving pictures

We've seen what machines can do with still images, but what about moving images?

For example, in 2016, Oscar Sharp and Ross Goodwin's Benjamin algorithm failed to impress with its first work, Sunspring. The following year, It's No Game did not fare much better.

In contrast, the pair's 2018 work, *Zone Out*, garnered considerably more attention while generating a certain amount of concern. Created using the same type of neural network as the *Portrait of Edmond de Belamy*, which sold at auction, Benjamin wrote the script, selected the scenes from thousands of films and gaming sequences and placed actors' faces on the appropriate characters (using face-swapping technology in the same way deepfake was used to produce fake pornographic videos with the faces of celebrities.)

What is deepfake?

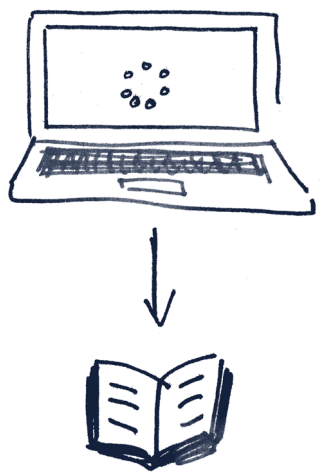
The term deepfake is used to describe videos created using GAN algorithms. The principle involves generating new data from pre-existing sources. For example, by using thousands of videos featuring the same individual, the computer generates something similar, without it being a copy of any of the pre-existing videos. Up until the end of 2017, the technique was mainly used in research settings, until a Reddit user decided to produce a fake pornographic video where porn stars' faces were replaced with those of celebrities. Now that the general public has access to this constantly improving technology, some people are concerned that it will become more and more difficult to differentiate real videos from forgeries.

Benjamin's creators are looking to artificial intelligence to increase human capacity, as opposed to trying to replace it. Their film represents one more step toward the automation of video production. Is a work created entirely by artificial intelligence legitimate? Could it compete against human-made works? Will we be able to tell the difference between a film made by a machine and one made by a human? Is this even an important question? Experimentation in creative AI raises a multitude of questions.

Artificial intelligence in audio production

The same type of experiments involving the use of AI to generate stories is being used for podcasts that contain no visual references. *Sheldon County* is a podcast produced by PhD student James Ryan from the University of California, Santa Cruz. Through the use of artificial intelligence, he has been able to generate an infinite number of procedural narratives. The process itself is not new, having already been used in the video game industry for games like *No Man's Sky* to automatically generate new environments to explore.

The principle behind *Sheldon County* is the same but used in an audio-only application. Set in a fictitious American city over a period of 150 years, the podcast tells the stories of the city's residents. Each fabricated county is populated by its own AI-generated characters, each with their own stories and motivations. From the outset, a county is assigned to the listener and the podcast series' intrigue is based on that selection of characters. In theory, every listener has access to a different story.



Ryan is more interested in the public's participation than the underlying technology, since without an audience, the stories do not exist. On October 31 2017, MIT released *Shelley*, an AI horror story generator which uses the same kind of human-machine collaboration. Starting from a "random seed", an arbitrary number used to start each adventure, Shelley initiated stories that were then elaborated using ideas collected on Twitter.

In both examples, human contribution—whether at the concept stage of a project, to set creative parameters and select pre-existing works, or judge the value of the result—is essential to machine creativity. What if this technology could be used to help more of us create, based on our individual imaginations? This vision of increased collaboration with computers as part of the creative process strikes us as a trend that is essentially focused on machines enhancing human capacity. Content producers can push the boundaries of human creativity through technology while focusing less on perceiving machines as a threat. Creators will need to adapt to the reality of this type of collaboration, although still at the experimental stage, as it becomes more and more prevalent.

Interactive audio content: a renaissance in group listening

Back to the future of sound

Audio content continues to carve out its place in the habits of Canadian consumers. In last year's trends report, we made an observation on the increasing popularity of podcasts in the United States and Canada.

On this side of the border

61% of adults are familiar with the term "podcast"

compared to slightly more reported in the United States

64% (Edison Research).

In Canada, it's no great surprise that 18–34-year-olds show the most enthusiasm for this type of audio content.

41% of the members of this age group listen to a podcast every month

The Canadian average stands at

28%

However, a comparison between the United States and Canada shows that we do not consume podcasts in the same way.

Many Canadians still prefer to listen to podcasts on their computers (40%), although their preferred method is via a mobile device (57%). Americans have a preference for listening to podcasts on their mobile devices (68%), while nearly 30% of fans use their computers to listen to them. Our differences can also be seen in the locations we choose for listening. More Canadians (61%) than Americans (49%) prefer to do their listening at home, where new devices have made remarkable progress during the last year. Indeed, among American consumers who frequently listen to podcasts, 24% regularly listen to this type of programming using a smart speaker. It is important to point out that contrary to Canadians, they have had access to this technology since 2014.

	Canada	United States
	40%	30%
	57%	68%
	61%	49%

Smart speakers and creative content

Canadians have embraced smart speakers.

Available in Canada since June 2017, already 8% of the national population says they own one (Edison Research). Moreover, half of smart speaker owners keep the device in their living room (MTM), which may give rise to consuming more than just practical content (like asking for a weather forecast, a general knowledge question, or listening to the news), such as collective listening and interactive creative content.

The use of smart speakers is reminiscent of the beginnings of radio, whose history is closely tied to collective listening. Whether in a public setting or a more intimate family gathering, radio broadcasting allowed multi-generational groups to gather around a single technology. Through smart speakers, audio seems to have maintained its power to unite.

Our 2018 report described several different interactive storytelling initiatives developed for Amazon's Alexa. The industry has continued to experiment in this area by launching interactive productions related to series and films. Netflix promoted its *Lost in Space* series via an interactive audio adventure designed for Google Home.

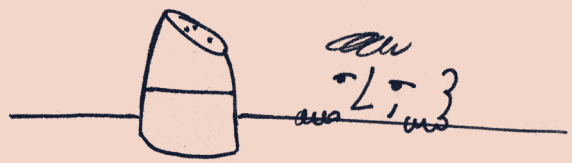
Interactive audio stories targeting the kids' market

The interactive audio content offer for children has exploded over the last year.

Amazon has even launched a children's version of its Echo smart speaker with integrated parental controls. BBC Kids, LEGO and Nickelodeon are among the companies that have produced content for this type of device.

In the last year, Universal and Earplay also launched *Jurassic World Revealed* for Alexa. Earplay, in coproduction with American public radio station WBUR, released *You and the Beanstalk*, a tale for 6–12-year-olds.

In Canada, Groupe Média TFO launched its Boukili Audio application, an interactive game to help 4–8-year-olds learn French. Additionally, Toronto's Storyflow launched a platform and hub for interactive voice entertainment and started developing choose-your-own-adventure style interactive stories for children. Targeted at families, the stories let kids interact with characters and choose how the action unfolds.



Carefully controlled content

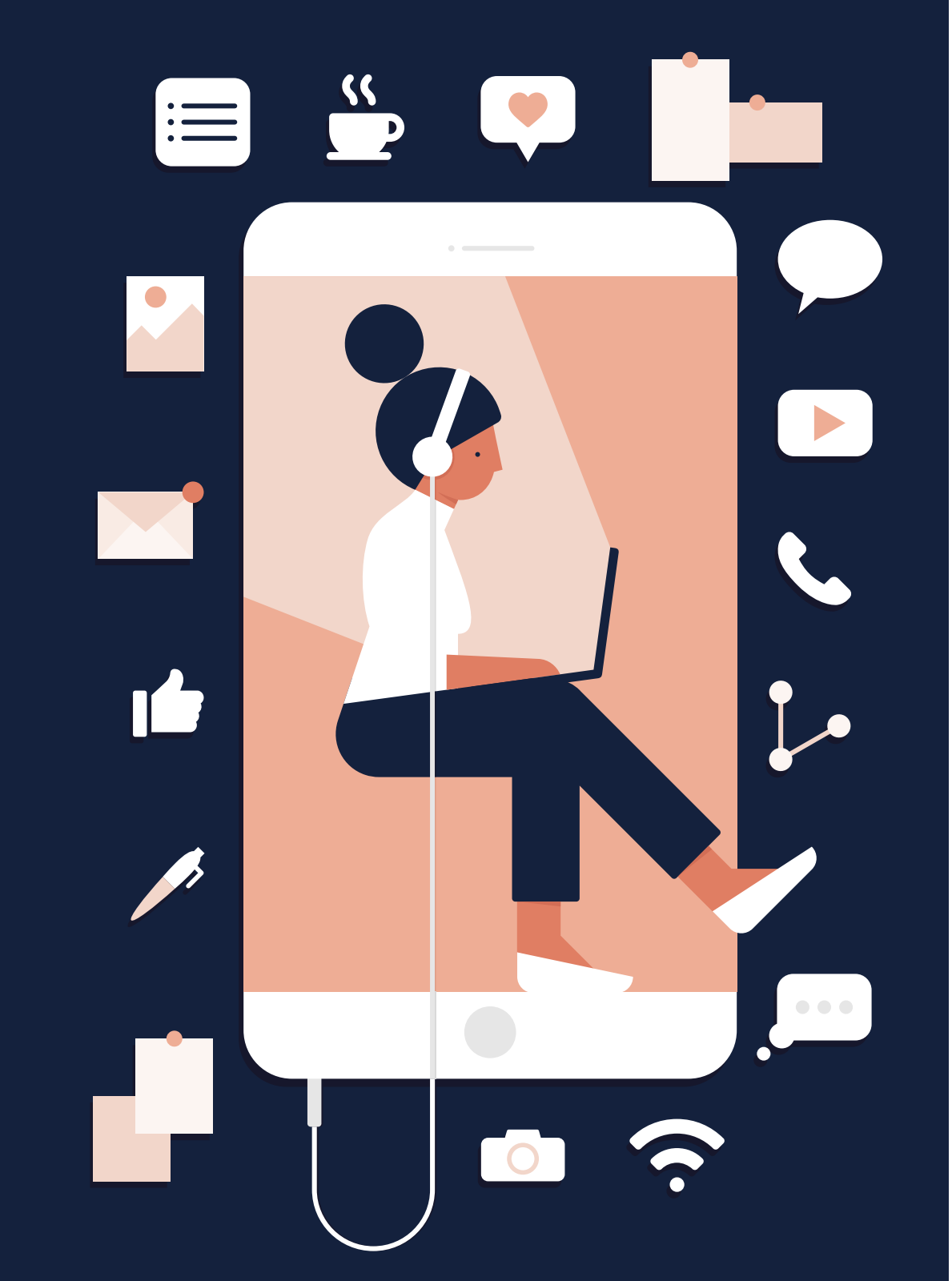
Of course, the use of voice-activated assistants in general and smart speakers in particular only requires us to use our voices.

In contrast with many other technologies that demand minimum levels of competency in reading and writing or a certain fluency with screens and keyboards, one needs only to be able to speak to use a smart speaker. Consequently, they are accessible to a very large client base, which includes children.

However, we still do not know what effects this type of content will have on young audiences.

Sara DeWitt, vice president of digital at PBS Kids, wonders if children truly understand to whom or to what they are speaking. It is therefore crucial that care be taken in the creation of interactive audio stories targeting children and youth.

Beyond these important considerations, the increasing popularity of these devices translates into numerous opportunities for experimentation in content creation.

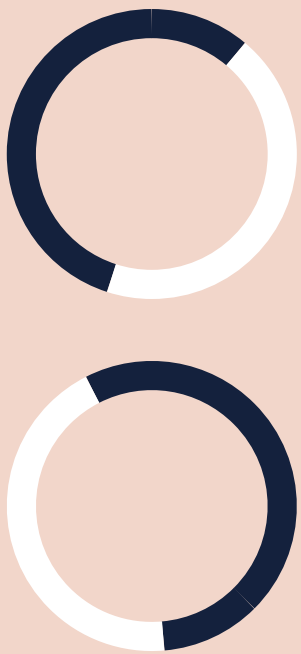


A common search for digital wellbeing

While OTT platforms continue to multiply and the consumption of online video smashes all the records, a certain resistance to being constantly connected is starting to crop up.

Internet users are increasingly prioritizing active use of their devices and optimizing their screen time. Faced with this collective awareness, major players in the digital marketplace are adopting a more transparent attitude toward consumers and some are betting on models that highlight the quality of the time spent on their devices.

Have we reached a plateau in our use of the internet, social media and smart devices? A study by the Pew Research Center suggests so. Its report shows that, while the use of digital technology has seen rapid and steady growth in the United States, the percentage of Americans who use these technologies has remained fairly stable during the last two years. Surely this saturation can be explained in part by the fact that the adoption rate has almost reached its potential in several regions of the world. However, it also raises questions regarding how we use our devices.



In recent years, “screen fatigue” has emerged in media discourse. Are we too connected?

Can the time we spend using our devices and devote to social media have an impact on our relationships, our everyday behaviour and, in the long term, on our mental health? In the past few years, members of the scientific community have taken a stand on the issue. Of note are reports by the Radiological Society of North America and the Royal Society for Public Health together with the Young Health Movement. Nonetheless, what is new is an awareness in the general population and **a desire to consume less or—at very least—smarter**.

According to a survey undertaken by GlobalWebIndex (GWI), more than one third of consumers in the United States and the United Kingdom believe that the use of mobile phones undermines their health and wellbeing. Moreover, users under the age of 35 are more concerned by this reality: within this demographic, the proportion jumps to 57%.

Contrary to what we may think, the level of concern is not related to the number of hours spent using a device. When very active users are compared with moderate users, the findings remain the same. According to GWI’s Erik Winther Paisley, the survey shows that the concern is elsewhere.

"What it does tell us is how people use their phones could be more important than how much they use them."

— Erik Winther Paisley, insights content manager at GlobalWebIndex, 2018

In parallel with this trend, the 'digital detox' concept is emerging. Another GWI study reveals that during the last year, one in five people went through a digital detox, which comes down to disconnecting completely from the online world over a specific period of time. In other words, they have eliminated the use of all internet-connected devices. That being said, 70% of respondents admitted trying to reduce their consumption in some way, without necessarily resorting to such drastic measures.

According to a recent survey by the Consumer Technology Association (CTA)

86% of Canadian consumers own a smartphone.

In the United States, an analysis carried out this year by Deloitte shows that

85% of Americans own or have access to a smartphone

When it comes to the wider consumption habits related to screen-based technologies, another study by GlobalWebIndex, We Are Social, Hootsuite shows that these same consumers spend an average of 5.5 hours per day on the internet, whether on a mobile phone, a computer, or a tablet.

4	29	
5 hours	**30 minutes**	**0 s**
6	31	1

They spend a further 3.15 hours per day watching television and 1.4 hour per day on social media platforms.

2	8	
3 hours	**9 minutes**	**0 s**
4	10	1

0	23	
1 hour	**24 minutes**	**0 s**
2	25	1

Media consumption: a narrowing generational gap?

Another finding worth noting is the **influence that young children have on adult consumption patterns**: according to a Solutions Research Group study, watching long-form video on mobile devices is increasingly popular with Canadians, but the trend is significantly greater among parents with children under the age of 12. In fact, 50% of respondents from households with children said that they had watched videos of more than 10 minutes in duration on a mobile device in the last month. For households without young children, the proportion was 29%.

This intergenerational mirror effect can also be seen in Deloitte's Digital media trends survey of the US population. The survey shows the emergence of Gen Xers (aged 35–51) as early adopters of new technology in general and consumption of content on mobile devices in particular. This demographic mimics behaviour observed among members of Generation Z (aged 14–20) and Millennials (aged 21–34).

Hyperconnectivity among teenagers

Meanwhile, among 13–17-year-olds, the total minutes spent online continue to increase. According to a Pew Research Center survey, a phenomenon known as hyperconnectivity is emerging, as nearly

95% of teenagers own a smartphone or have access to one. Their mobile connections lead to online activity that is even more pervasive.

45% of teenagers surveyed say that they are online almost constantly.

The same study reveals that about

52% of American adolescents say they have taken steps to reduce the amount of time they spend on their phones.

This also applies to time spent on social media (57%) and video games (58%).

Major players in the digital space are showing some goodwill in combating the passive use of technology in this era of zombie-feed scrolling.

Given the general awareness of this issue, there is a perception that industry leaders in the digital ecosystem have started to develop something new: environments in which visual technology is less pervasive. Of course, we are referring to the rise of a digital ecosystem populated by **voice-activated assistants**, **earphones**, **watches**, and other handheld devices—all with the objective of helping us to reduce eyestrain. In the last few years, we have maximized the demands on our eyes through the introduction of larger screens, increasingly sophisticated cameras as well as virtual reality (VR) and augmented reality apps (RA).

Nevertheless, our ability to resist our devices is less and less certain and the major players are taking notice.

"What you get sucked into is not the one thing that caught your attention—your text message or tweet or whatever. Instead, you unlock your phone and instantly, almost unconsciously, descend into the irresistible splendors of the digital world—emerging 30 minutes later, stupefied and dazed. You open this irresistible box, and you can't fight it"

— Carolina Milanesi, analyst at the technology research firm Creative Strategies, 2018

With ethical considerations emerging and consumers questioning the use of their devices, Apple and Google reacted, although their business models depend on the very overuse at issue. After former Google design ethicist Tristan Harris revealed the strategies used by digital marketing giants to encourage overuse of their products, the discourse has evolved rapidly. We are now seeing a veritable race to develop tools that encourage a healthier use of our devices.

After leaving Google, Harris founded the non-profit organization Time Well Spent, to counteract the power of the attention economy, or the battle being waged by major digital players to monetize our transient attention.

For some years now, parents have been concerned with the media their children consume and the need for safe online environments free of content considered inappropriate. Since the recent appearance and improvement of parental controls on platforms like YouTube Kids (2015) and Netflix (2013), parents can rest a little more easily. Nonetheless, applications that track the time adults spend on their devices are emerging (mainly **Moment**, **QualityTime**, and **Checky**), prompting the big players to invest more in the latest versions of their interfaces.

Apple's iOS 12 was the first release to take the leap with the Screen Time utility, which calculates the number of minutes spent on each application and allows users to set time limits and manage distractions caused by notifications. Google is following suit with its Digital Wellbeing dashboard for its latest Android 9.0 Pie update, which was announced just before Apple's release, but rolled out after iOS 12. And that is without mentioning other improvements to existing devices, such as *Do Not Disturb* options, sleep management tools or charts that detail overall digital wellbeing.

"It's really important for people who use Instagram and Facebook that the time they spend with us is time well spent."

— Ameet Ranadive, Instagram's product director of wellbeing, 2018

Following the trend, social media platforms such as Facebook, Instagram, and YouTube have introduced tools that track the amount of time spent on their platforms. Facebook has launched its *Your Time on Facebook* dashboard and created new positions within the organization whose incumbents are responsible for increasing users' wellbeing.

That being said, the difference between passive and active time spent on online platforms is not yet part of the equation. In other words, while it is possible to set time limits, each one results in a pop-up alert to take a break. Think of YouTube's *Take a Break* notification or Instagram's *You're All Caught Up* message. There is no real restriction on the ability to scroll or to like posts. Consequently, while there is transparency around the amount of time spent online, it is still the user's responsibility to monitor consumption. Although these tools represent a good starting point, they will have to evolve, because otherwise users could just end up ignoring the alerts.

What about low-tech solutions?

In parallel to these initiatives, there is a trend toward low-tech, minimalistic solutions such as the use of small devices allowing users to perform quick online tasks without monopolizing their time or attention.

Such is the case of Palm, an Android device developed by a San Francisco start-up, which works as an add-on to a main telephone line. It does not work on its own or have its own number. The idea is to use it on weekends and evenings or at any other time the user wishes to reduce the digital distractions.

Although this trend is not new—the first promotions for the Light Phone date back to 2015—what we are witnessing is a new approach to these devices: not a replacement for our regular phones, but rather the creation of a new role for them, similar to that of the smart watch.

One way or the other, our collective awareness and the identification of a tipping point regarding the overuse of digital devices are forcing creators and distributors, to remain relevant and ramp up their creativity in the development of content and formats—in a universe where content is more and more diverse and particularly as a result of the presence of major streaming platforms.

"Our eyeballs and the time that we have to consume media of any kind are being challenged."

— Dan Rayburn, streaming media analyst with Frost & Sullivan, 2018

New formats involving senses other than vision are gradually emerging and taking their place in the digital landscape while redefining the narrative form. Industry stakeholders and decision makers are finding that collaboration and partnerships are not only beneficial, but also essential to creating strong content and entering a marketplace that has already been commandeered by the giants of Silicon Valley.

Cultivating trust

Following the Facebook–Cambridge Analytica scandal, companies must now gain—or regain—and cultivate consumers' trust. Does your company engage consumers directly? The protection of personal information and privacy is more important than ever in gaining an edge over your competition.

The debate around the privacy paradox is not a new one. Indeed, specialists have been considering the question for more than a decade, but the debate has certainly come to the forefront in the last several months. Consumers say they are concerned about the protection of their personal information, but their behaviour online does not always reflect this worry. In an article published on Engadget.com, technology reporter Chris Ip points out somewhat ironically: "When polled, people say they care deeply about privacy, but in reality, they will give up their data or even the email addresses of their friends in exchange for something as trivial as a pizza." Things are just as contradictory on the business side: "They're caught [businesses] between using data to provide better consumer experiences and violating consumer privacy," concludes Rani Molla, data editor at Recode, after reading the latest Internet Trends Report by Mary Meeker.

The Facebook–Cambridge Analytica scandal uncovered by *The Guardian* and *The New York Times* in March 2018 undeniably placed the privacy paradox back at the forefront of public debate.

It is reported that nearly 90 million Facebook users had their personal data improperly collected for electoral profiling purposes during the 2016 American presidential election.

In the spring of 2018, we learned that Facebook had shared data on its users with Apple, Samsung and dozens of other device manufacturers. The platform had also approached American hospitals with a view to obtaining medical data. A few months later, in September, Facebook was the victim of a cyberattack that exposed the data of 29 million of its users.

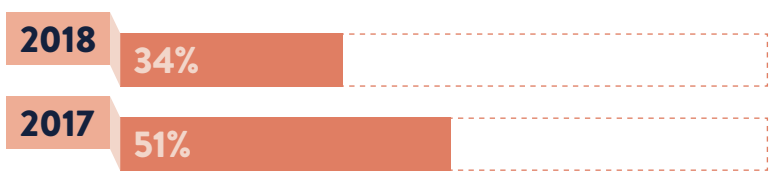
If last year was difficult for Facebook, it was also for many other companies, including Google and its YouTube video platform, Yahoo, Twitter, and Grindr—all caught up in controversies related to the dubious and even illegal use of personal information. Furthermore, an April 2018 University of California, Berkeley report showed that more than half of the Android apps targeted at children under 13 years old may be in contravention of COPPA in the United States (the *Children's Online Privacy Protection Act*) due to the improper practice of collecting and sharing data.

Consumers' perspective in the era of customization

Consumers are certainly becoming increasingly cautious. An October 2018 survey by GlobalWebIndex revealed that 65% of North American respondents (62% among Canadians) are worried about the way businesses use their personal information.

In 2018, only 34% of Canadians said they trusted Facebook, according to data published by Proof Inc. This represents a drop of 17 percentage points compared to the previous year. **Nevertheless, 84% of respondents in Canada are still active users of the platform.** "While we may have grave concerns about how Facebook behaves as an organization, we still use it, because it delivers the things we expect of it," explains Josh Cobden, executive vice president of Proof Inc.

Canadians saying that they trust Facebook



The sharing of personal information is therefore not an obstacle to the use of a platform, as long it responds to the needs of its users and offers them a customized and relevant experience.

A May 2018 CROP poll showed that 53% of Canadians would agree to sharing their personal information in return for products and services adapted to their needs. This proportion climbs to 67% among 25-34-year-olds and to 79% within 18–24-year-old group. "Young people are more consumption-oriented and therefore eager to share their data to enhance their consumption experience," explains the market research firm.

Canadians agreeing to share their personal information

How can consumer-oriented businesses succeed in distinguishing themselves from their competition? By guaranteeing their customers that they will make responsible use of their personal information and respect their right to privacy.

"Company reputations hinge on their trust and transparency credentials over personal data."

— Chase Buckle, analyst at GlobalWebIndex, 2018

This trend is by no means new. For example, in 2015, Microsoft France's *Regards sur le numérique* ("Digital perspectives") observed that the protection of personal data was destined to become an "element of competitive differentiation." However, the necessity for sound data management is now more urgent due to a marked shift in legislation.

How businesses are reacting to the GDPR

More than any other legislative measure to date, the European Union's (EU) *General Data Protection Regulation (GDPR)* is driving companies to better manage and protect their clients' personal information. In development since 2012, the GDPR came into effect in May 2018, only a few weeks after the Facebook–Cambridge Analytica scandal broke.

Among other measures, the GDPR introduced a requirement for explicit consumer consent for the collection of personal data, the right for EU internet users to request the erasure of their data, tougher penalties for companies found to be in default, and a requirement for foreign companies to conform to legislative measures.

"Now, EU consumers will have the freedom to opt in [to personal data collection], rather than have the burden of opting out. That emphasis on consent creates a financial reward to building consumer trust."

— Nitasha Tiku, journalist for Wired, 2018

Silicon Valley's tech giants are catching up quickly. Facebook has put together a new team tasked with developing personal data management tools, which include a feature that allows users to erase their browsing history. For its part, Google improved deletion controls on all of its platforms in the fall.

Apple has started requiring that apps housed in its App Store contain a personal information and privacy policy. Moreover, CEO Tim Cook praised the GDPR last October, congratulating the EU on its initiative and inviting the United States to improve its own legislative measures related to privacy rights. "Apple's devices and software—and the company's ethos—are now steeped in user privacy protections that other tech companies would never dream of embracing," points out journalist Michael Grothaus.

This is exactly what worries some observers. **Over time, will tighter management of personal data benefit only a handful of the biggest tech companies—like Google, Apple, Facebook and Amazon—to the detriment of smaller companies who have less financial and technological resources at their disposal?** In the United States, major media outlets like *The Los Angeles Times* and the *Chicago Tribune* have been forced to block access to their web sites by European internet users, because they were unable to guarantee conformity with GDPR requirements. Another measure under consideration in Europe, the draft ePrivacy Regulation, is currently arousing fierce controversy within the EU. No fewer than 50 European media companies came out against it publicly last March: "The media companies claim the current ePrivacy proposals, which require that all businesses must get explicit consumer consent to use cookies, would give still more power to Google, Facebook and Amazon, reported Digiday's, Jessica Davis.

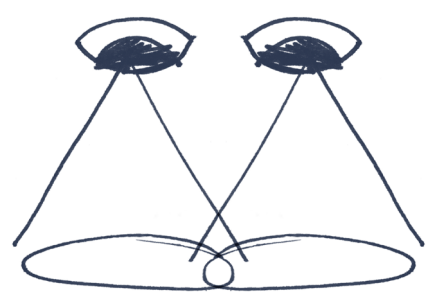
What impact will these legislative initiatives have on the European market over the long term? What influence might they have on regulations and business practices elsewhere in the world? The measures adopted by the EU have certainly influenced the legislative discourse in Canada. In February 2018, the Standing Committee on Access to Information, Privacy and Ethics recommended an amendment to the Personal Information Protection and Electronic Documents Act (PIPEDA), with a view to introducing or improving measures already in place related to the consent to collect, de-indexation, erasure, and purging of personal data. Moreover, the committee invited the Canadian government to ensure that the PIPEDA maintain its "adequacy" with respect to the GDPR.

The Minister of Innovation, Science and Economic Development reacted favourably to these recommendations. However, he insisted on the need to examine them further—notably in the context of a round of public consultations started in June 2018—and to achieve a reasonable level of alignment with the GDPR. "Recognizing the importance of interoperability between diverse privacy regimes, the EU has adopted a concept of substantial rather than outright equivalence [...] In that regard, it is not clear that PIPEDA requirements must reflect all of the protection rights and measures found in the GDPR in order to retain the adequacy of the Act."

In this context of legislative uncertainty, businesses can at least be assured of two things: the use of massive amounts of data, or Big Data, will continue to be a determining factor for success in the digital economy and today's increasingly savvy consumers are likely to be more attuned to issues affecting their right to privacy.

Media businesses have everything to gain from adopting a more proactive and more preventative approach. Dr. Ann Cavoukian, former Information and Privacy Commissioner for the Province of Ontario and pioneer of an approach to systems engineering developed in the late 1990s known as Privacy by Design, points out:

"The future of privacy cannot be assured solely by compliance with regulatory frameworks; rather, privacy assurance must ideally become an organization's default mode of operation. "



Privacy tools for Canadian businesses

According to the latest survey on cybersecurity by the The Canadian Internet Registration Authority (CIRA),

59% of corporate respondents said that they retain their customers' personal data, but

38% admitted to not being familiar with the requirements set forth in the PIPEDA.

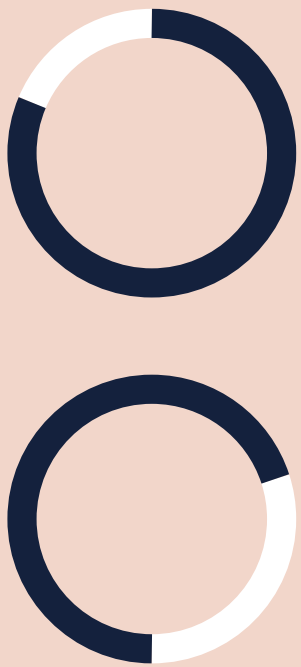
So, what are your responsibilities under the PIPEDA? Do provincial laws also apply to you? Innovation, Science and Economic Development Canada offers a toolkit that will help you to better understand your responsibilities with regard to the protection of personal information. Also, the Office of the Privacy Commissioner of Canada has developed a list of recommendations on how to write up a privacy policy: "A good privacy policy explains, for example—clearly and in plain language—why an organization is collecting personal information, what they will do with it, how it will be protected and who they will share it with."

Gaining a share of the interactive content market

While the majors compete by increasing consolidation in the media and entertainment sector, opportunities are arising for content companies in markets that are traditionally less familiar with audiovisual production and where there is a growing need for interactive experiences. This new type of collaboration is particularly promising in the education and out-of-home entertainment sectors.

The last few months have seen a trend toward mergers in several media sectors: video on demand, film studios, video game publishing, etc. Regardless of the sector, this wave of consolidation is being driven in large part by a gradual migration of consumers to online environments. In their quest for success, all of the major players are looking to acquire exclusive brands and titles to round out their online offerings.

While the heavyweights are battling it out, new opportunities are cropping up for content producers in markets looking to diversify their practices or reinvent their business models by turning to interactive experiences. This is the case of the education market, among others, and for the market building up around virtual reality and augmented reality experiences.



Educational technology is redefining pedagogy

Educational technology, or EdTech, refers to the use of technology in an educational setting.

As learners are becoming more technically savvy, the popularity of educational technology is on the rise. According to research and consulting firm Frost & Sullivan, the global EdTech market generated revenues of US$17.7 billion in 2017 and this amount is expected to climb to $40.9 billion by 2022, which represents more than 18% in compound annual growth. Investors have recognized a good thing: a recent Metaari report indicates that, in 2017, global investments in EdTech reached a record US$9.52 billion, a year-on-year increase of 30%.

Gamification is a significant trend in educational technology produced for classroom use. This trend can be seen in the integration of game mechanics into pedagogical materials, which seek to encourage student participation. A recent report on gamification in the education sector suggests that the value of the global market could reach US$283 million by 2022.

This industry is generating interesting new opportunities for creators of interactive experiences. For example, the Canadian company Classcraft Studios is recognized as a leader in this field. Classcraft's offer is built around a learning and motivation management system that adds value to teaching by redefining student progress through gamification.

Learning through the use of virtual and augmented reality

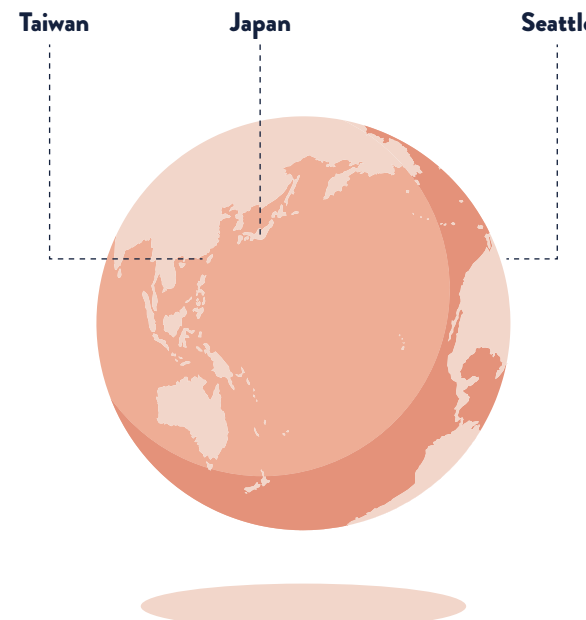
The main players in VR and AR also have the education sector in their sights.

In an effort to demonstrate the relevance and potential of immersive content in the education sector, they are producing specialized programs intended for classroom use.

As early as 2015, Google launched Google Expeditions, a free app that enables students to explore the world through educational VR field trips without having to leave the classroom.

The tech giant came back in 2017 with an AR app that allows teachers to introduce virtual objects in the classroom and study them as though they were physically present. In the summer of 2018, Oculus launched education pilot programs that outfit schools, libraries and museums in Taiwan, Japan and Seattle with Oculus Rift and Oculus Go VR headsets—the goal being to set up educational programs built around history, science and culture.

Manufacturers of VR and AR hardware need content for their devices if they want to stake a claim in the education market, which in turn creates opportunities for content producers and creators.



Focusing on the reintroduction of catalogue content

Another strategy for entering the education market is the reintroduction of catalogue content as a way of developing a collection of learning materials. Several Canadian players are already pursuing this type of strategy. Take, for example, CBC/Radio-Canada's Curio, a portal which gives teachers access to classroom-appropriate audio and video content, or the National Film Board of Canada's Campus, which offers a collection of documentaries, animation films, interactive productions, and shorts as well as educational resources and teaching materials.

On the private sector side, Ubisoft released a new, educational version of its *Assassin's Creed Origins* game. With the battles, the intrigue of the narrative and time constraints removed from the original game, students can explore and learn more about life in ancient Egypt by taking a virtual guided tour.

The educational technology market in Asia

+ In 2016, global investments in Chinese EdTech companies rose to $1.2 billion. Going forward, China's EdTech industry is expected to register 20% annual growth.
+ A joint report by Google and KPMG estimates that India's online education market will increase by more than 6 times, to $1.96 billion over the next four years.
+ The entire Asia-Pacific region is projected to represent 54% of the global EdTech market by 2020.

Beyond the classroom

The term "educational technology" may suggest products that are only for use in the education sector. However, the reality is that the education market extends well beyond the classroom, with training solutions intended for a variety of learning contexts, whether it be in a business setting or at home.

The general public has clearly embraced educational technologies: from language training tools to learning a new skill (how to code, for example), massive open online courses (MOOCs) and brain-training games, to name a few.

The educational content craze can also be seen in online video. Indeed, TED Talks and similar types of content achieve over 3 billion views and downloads a year, including many content available in podcast format.

"The US is quickly becoming a podcast nation. Even more interesting is what people are listening to. One would expect genres like sports, news, and technology to be popular—and they are—but they are all surpassed in listenership by one unlikely competitor: educational podcasts."

— James McWilliams, Pacific Standard contributing writer, professor at Texas State University, and author, 2018.

Always on the lookout for growing market segments, YouTube announced in the fall of 2018 an investment of US$20 million in YouTube Learning, an initiative whose mission is "to support education-focused creators and expert organizations that create and curate high-quality learning content on the video site." YouTube's interest in educational content does not stop there: the platform announced in March that it expects to invest US$10 million over two years in media literacy awareness. Content creators like the Canadian duo behind the ASAPScience channel, which uses drawings as a fun way to explore science, have partnered with YouTube on the project.

Interactive and educational toys

Edutainment products that teach through play are also part of this industry segment that will be of interest to content producers. Many parents are concerned about the educational value of the toys they buy for their children and have a preference for toys that entertain while stimulating creative, social, and intellectual development.

Although certain educators may question the educational value of some toys, the trend is nevertheless translating into a flourishing worldwide market for edutainment products: Technavio predicts annual growth of close to 10% through 2021.

Nintendo is also riding this new trend. In January 2018, the company launched Nintendo Labo, a concept based on «build-your-own» cardboard cut-out toys into which the Nintendo Switch console can be inserted in order to play dedicated mini-games. The educational value of these web-connected games is attracting parents and, potentially, the education sector: in October 2018, the Japanese video game company announced pilot projects to integrate Nintendo Labo into STEM curricula in the United States and Canada.

Numerous Canadian companies are also investing in this sector, like Boat Rocker, the main investor in a round of financing that raised US$8.5 million for MarcoPolo Learning, a STEAM competencies app for children.

Out-of-home entertainment

Since the commercial release of high-end VR headsets like the Oculus Rift and the HTC Vive in March 2016, general public sales have been lower than many market analysts expected. Although high-end VR has not caught on in huge numbers in the home market, it is on the rise in location-based entertainment (LBE) centres—complexes where the public can try innovative entertainment experiences like VR and AR at a lower cost. Already well established in Asia, the trend is starting to catch on in Canada.

Location-based entertainment centres are popping up in a wide range of venues, including movie theatres and shopping malls. These types of sites could prove to be of particular interest to the content sector. Over the last several years, movie theatres have been striving to diversify their activities to counteract volatility in box-office revenues, while shopping centres, seriously affected by the impact of online shopping, are trying to reinvent themselves as entertainment complexes. By focusing on the LBE centre model, these companies could benefit from collaborating with content producers, to not only gain access to content, but to also benefit from their technological expertise.

Location-Based VR Venues by Region

	2018	2019	2020	2021	2022
Canada	68	115	184	280	399
Worldwide	5,659	10,695	18,564	30,296	45,407

Location-Based VR Revenues by Region

In millions of dollars

	2018	2019	2020	2021	2022
Canada	28.4	47.9	76.0	114.0	162.4
Worldwide	1,174.6	2,050.1	3,380.8	5,344.0	8,085.4

Canadian movie-theatre giant Cineplex announced in September that it was partnering with VRstudios, a virtual reality solutions company. The agreement will see the opening of 30 to 40 VR attractions in Canadian movie theatres and shopping centres by the end of 2021. Cineplex also acquired a significant share in VRstudios as part of the deal, and will consequently be able to market the technology in North America and internationally.

Out-of-home entertainment is especially promising when it comes to high-end VR experiences, since they cannot be reproduced at home due to the technical complexity of the devices involved. Therefore, out-of-home entertainment affords the public an opportunity to try high-quality interactive experiences in a social context and, often, for the first time and at a lower cost. For content creators, these entertainment experiences can be developed using the LBE model to reach a wide audience at a fraction of the cost of developing them for home use.

5G: the technology propelling the digital world into the future

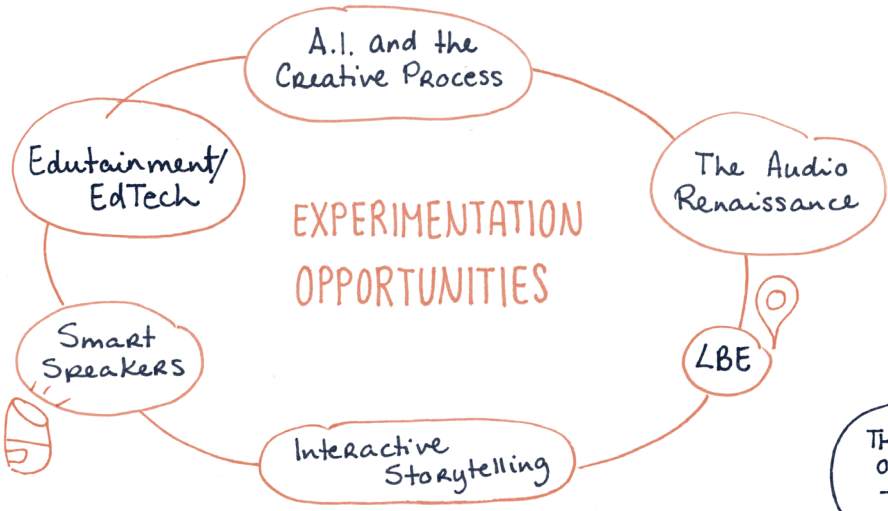
By reducing response times and increasing data transfer rates, 5G technology will make it possible for the content sector to deliver data-hungry experiences in real time. VR, AR, video games, the internet of things and high-bandwidth video are all technologies that will benefit from the deployment of 5G networks.

To better understand the impact of 5G on the content sector, read Ovum's *How 5G will transform the business of media & entertainment* report.

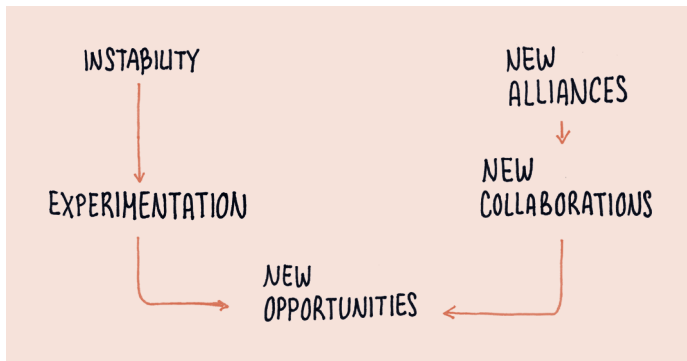
Although we have been hearing about 5G for several years now, the technology that will replace 4G and LTE is becoming increasingly important, as different countries vie for dominance in the development of the new standard for mobile computing. The issue is crucial when it comes to competitiveness: whoever puts the first operational 5G network in place becomes the world leader in the development of applications that will harness the capabilities of 5G technology. Apps like Snapchat and Uber were developed in the United States, the country considered to have won the race to deliver 4G technology.

Where is Canada ranked in this race? In order to implement the first 5G networks, our telecommunications firms will have to wait for ISED (Innovation, Science and Economic Development) to hold its 2021 spectrum auctions. Nevertheless, given the implementation of the ENCQOR program, which made a pre-commercial 5G network available to researchers and SMEs, Ontario and Québec based companies had the opportunity to start testing 5G technology in 2018.

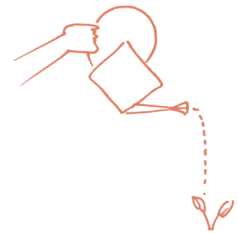
Sketchnote



Humans ♥ Machines



PRIVACY **VS** PROTECTION OF PERSONAL INFORMATION



THE POWER OF TECHNOLOGY

unite **VS** divide

MEDIA CONSUMPTION

active passive

65 % of North American Respondents

62 % among Canadians

are worried about the way businesses use their personal information

GDPR = General Data Protection Regulation