



The changing landscape of disruptive technologies: A Canadian Perspective

Like the printing press and the personal computer before them, innovations like artificial intelligence (AI), blockchain, and automation are re-writing the rules of business. Yet while Gutenberg's invention and Roberts' Altair 8800 appeared centuries apart, today's game-changing disruptors are arriving with far greater frequency.

The pace of change can be overwhelming (if not hard to track). Nevertheless, Part II of a recent KPMG International study, *The Changing Landscape of Disruptive Technologies*, offers a tech industry snapshot of disruptive technologies currently trending as game-changers, and how organizations across the globe have been managing disruption on the domestic front.

Drivers of transformation

What's on the radar for Canada's tech leaders? Take your pick. From AI to extreme automation, and cloud computing to blockchain applications, the country's focus is split between an expanding list of ground-shifting innovations. Even still, a majority of Canadian tech executives* surveyed within *KPMG International's 2018 study* believe it's the tools driving social networking and collaboration that hold the most disruptive power.

It's a perspective that makes sense. For one, social networking and collaboration tools (e.g., on-demand platforms, collaborative portals, Internet of Things (IoT) systems) are today more visible to consumers and, by extension, more apt to be the most impactful part of their business interactions. Moreover, these tools are becoming increasingly commonplace in key sectors such as finance, healthcare, and manufacturing, as a means to aggregate data, link sophisticated systems, improve business efficiencies, enhance collaboration across entire organizations, or simply make smart homes and buildings tick.

Certainly, it's the technologies that connect which are making the biggest impact. This includes cloud-based services, which are growing in popularity as organizations become more comfortable with trusting their data to the "cloud"

and more attuned to the advantages of secure data-sharing. What's more, as awareness and strategies around cyber security mature, Canada's business leaders are leaning more on reputed cloud-based services to minimize their risk exposure and reduce their reliance on dedicated, in-house IT departments.

AI is also top of mind for Canada's tech stakeholders. Indeed, with multinational tech titans like Google, Amazon, Samsung, and Uber setting up research and development hubs in major cities across the country, Canada has become a global centre of influence for machine learning. The hype around Canada's AI sector is being driven by a vast number of large and mid-sized companies who are exploring ways to embed AI into their business operations. Likewise, AI continues to be a dominant focus area for investors in Canadian tech as the country continues to expand its presence as an AI hub.

Blockchain is also identified among the most disruptive technologies in Canada among survey respondents. This is understandable from our perspective given the uptick in clients across all sectors who are exploring blockchain technologies to enhance their financial transactions and bring greater clarity and efficiency to their supply chains. On a larger scale, the global notoriety of made-in-Canada cryptocurrencies and the increasing adoption of digital ledgers on Bay Street financial leaders have also played their part in adding digital ledgers and cryptocurrency to our national conversation.

Standing in the way

"Disruption" has fast become one of the most overused words in business today, but it is an apt descriptor term for how technologies like these are impacting Canadian

organizations. That is, while each of the aforementioned tools holds significant promise for how we collaborate and transact with consumers, there are several barriers to adoption that continue to pose a challenge.

- **Cyber Security:** Cyber security was called out as one of the top barriers to commercialization in KPMG’s global study of disruptive tech. After all, with all the media attention on data breaches and cyber thefts, organizations remain as fearful as ever about the significant financial and reputational damages they face if they become a virtual victim. Yet while actual incidents of large-scale cyber attacks are few and far between in Canada, the specter remains and will surely intensify as breaches become more frequent.

It’s not a matter of being ill-prepared. Companies are more adept at identifying cyber risks and protecting against themselves than they have ever been. Nevertheless, there is the lingering threat of becoming the next headline. Concerns over cyber security are also being exasperated by a growing reliance on collaborative technologies and the subsequent need to ensure all stakeholders in a supply chain or business network are taking proper measures to protect on their end. We have noted an evolution of the conversation around cyber from “prevent” to “detect, minimize and respond”.

- **Legacy IT infrastructure:** The desire to integrate new technologies is challenged by the costs and logistics of replacing systems that have, in many cases, served as the backbone to back-office operations for years (if not decades). Adopting new systems can be a daunting, if not expensive, proposition. Rapid evolution of technology from being an “enabler” of the business to the “lifeline of the business”.
- **Brain drain:** It’s no secret that Canada has a history of losing its best and brightest to the US. While we’re starting to see movements in the opposite direction due to political conditions south of the border, an immigration system favourable to high-skilled workers and our country’s growing tech and innovation ecosystem, the fact remains that it is still difficult to build and maintain a tech-savvy workforce in Canada. Several firms in Canada – and, indeed, around the world – are looking to replenish high-demand talent pool, such as emerging technology specialists, scenario- and risk-modeling specialists, and cyber security specialists. Challenges inevitably arise when demand for these professionals exceeds supply of high-skilled global talent.

A healthcare case study

A majority of Canadian respondents surveyed by KPMG International for its global technology innovation report cited the healthcare and life sciences sectors as the ones most susceptible to technology disruption. This is unsurprising given the growing number of genetic tech companies setting up within our borders and Canada’s international reputation in regards to human genome mapping, pharmaceutical research, and medical technology development. Moreover, Canada’s integrated healthcare system makes it a highly suitable incubator for innovation and collaboration.

- **Salesforce development:** Brain drain and scaling challenges can make it difficult for organizations to develop a sales network that can take their product and technology on a global scale. Indeed, for many of Canada’s top tech companies, it’s not uncommon to work with a Chief Revenue Officer or Sales Officer based out of the US. It’s also common to see people in those positions move on to other opportunities after only a few short years.
- **Speed of adoption:** Many companies are challenged with balancing long-term growth strategy against the need to digitize operations, automate workflows, or take to the “cloud”. Such moves can be extremely disruptive and the risk of investing in tech that may become obsolete or outmoded in the near future is real. Considering a bulk of Canada’s organizations are small to mid-sized, these risks are enough to keep them on the thinking track as opposed to executing on technology investments.

Making peace with disruption

KPMG in Canada stewardship in AI, healthcare innovation, and social / on-demand platforms is recognized around the world and the emergence of tech hubs in areas like Toronto-Waterloo, Montreal, and Vancouver is proof that the urge to innovate is outweighing any reservations. The findings from KPMG International’s 2018 study are perspectives from a single moment in time; and like technology itself, we anticipate future studies will highlight how Canada’s affinity for disruption is continuing to evolve.

*Survey sample size, Canada: 60 of 767 respondents (7.8%)

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