Ivey
Business School
WESTERN UNIVERSITY · CANADA

HOW TO LEAD IN A TIME OF DISRUPTIVE TECHNOLOGY:
LESSONS FROM CANADA'S LEADERS

INTRODUCTION

Why think about disruptive technology?

Today's businesses operate in an environment of constant change. Disruptions are coming faster and having a broader and deeper impact than ever before.

Rapidly shifting technology is one force behind this wave of disruption. Leaders must anticipate emerging technologies in order to keep products and services current and prevent potentially catastrophic financial impacts. Consider these iconic examples: Blockbuster, a movie and video game rental company, lost its battle with Netflix, a video streaming service. Traditional taxi companies, and the government bodies that regulate them, were caught off guard by the emergence of Uber, a peer-to-peer ride sharing platform.

In addition to the financial imperative to engage with disruptive technology proactively, there's also a real opportunity to create positive impact on society. Issues such as climate change, over-consumption and biodiversity loss threaten the ability of current and future generations to live on this planet. In this environment, there's a very urgent need for leaders to leverage technology to create shared value – long-term financial value for their organization *and* positive impact on society.

This report identifies lessons from 150 leaders

This report is based on the insights of 150 Canadian leaders in finance, energy and health, coming from academia, business and the public sector. At Ivey's Canadian Business Frontiers Conference, these leaders discussed how to leverage disruptive technology to create positive outcomes for business and society.

Conference attendees described the specific knowledge, skills and mindsets required to lead in a time of disruptive technology. This report organizes their ideas into four themes:

1. **Think long-term:** Envision the future you want to create and foresee emerging technologies that will affect your direction.

2. **Think systemically:** Step back and look at the big picture of how new technologies will impact your organization and your external environment.

3. **Create shared value:** Plan deliberately to ensure that new technologies maximize positive outcomes for society and minimize risk. Then, measure your impact.

4. **Partner with others:** Working with others can enable innovation, decrease costs and accelerate commercialization. Leaders should understand the pros and cons of various partnership models and engage partners strategically.

Who should use this report?

This report is written for technology decision-makers and those who educate and advise them. We define "technology decision-makers" as individuals making strategic decisions about which technologies to develop and deploy. These individuals range from entrepreneurs leading technology start-ups to senior executives in large companies and hospitals.

Technology decision-makers will learn how their peers are experiencing disruptive technology, and best practices for leading in this context.

Educators and advisors will hear candid opinions on what is required to respond productively to technological disruption. This may inspire revisions to curriculum and business support services.

Canadian Business Frontiers

THINK LONG-TERM

> "The best way to predict the future is to invent it."
> *– Alan Kay, President, Viewpoints Research Institute*

Plan for the long term

Thinking long-term means envisioning the future you want to create – ideally, by setting that vision with others. It also means looking for emerging dynamics. Even if you do nothing, which new trends and technologies will impact your organization? "We think of ourselves as the headlights of the organization," says Jon Mitchell, manager of strategy and integration at Suncor Energy. "We see what's coming and plan how to navigate those bumps in the road."

Balance the short term

Technology decision-makers often struggle to balance short-term and long-term performance. "Short-term planning rewards the human desire for certainty," says Tima Bansal, Canada Research Chair in Business Sustainability. Often, institutional incentives, such as performance planning, bonuses and shareholder demands, also reward short-term performance. But a short-term focus can compromise long-term financial success and social impact. Technology decision-makers must learn to balance the long term with the short term.

Andrew Sarta and Mayur Joshi, PhD students at the Ivey Business School, offer a suggestion for striking this balance. "Perhaps the tension between the short term and long term doesn't have to be so pronounced." "Perhaps decision-makers could think not about short term *versus* long term, but rather the short term *needed to get to* the long term."

THINK SYSTEMICALLY

> "The nature of a system is that different elements work together in ways that are unpredictable and far reaching."
>
> *– Tima Bansal, Canada Research Chair in Business Sustainability*

See the big picture

Systems thinking is a holistic approach to analysis that focuses on how parts of a system interrelate. It also considers system operations over time and within the context of larger systems, according to John Sterman, director of the MIT System Dynamics Group, in an **article** published with the Network for Business Sustainability. Adopting this expanded perspective makes decision-makers better able to foresee and respond to potential impacts of new technologies.

To expand your thinking, try asking questions like: What will be required for implementation? Who will benefit? Who will resist? How will existing workflows change? How will implementation be financed? What policies will govern the technology – or will new policies be needed? Which internal and external collaborations will be required?

Systems thinking in practice

CUTRIC, a non-profit facilitating the adoption of electric bus fleets in Canadian cities, demonstrates why decision-makers must think and act systemically. Purchasing electric bus fleets requires significant capital investment. However, municipalities often manage capital and operations budgets separately. Budget coordination is required to justify major capital investments with operational payback. Running electric buses also requires utility providers to install charging stations along bus routes — necessitating further collaboration.

CREATE SHARED VALUE

> "Modern society has deep-rooted issues. We should be asking how new technology can contribute solutions."
> – *The Honourable Elizabeth Dowdeswell, Lieutenant Governor of Ontario*

Understand social issues and offer solutions

Creating shared value means producing financial value and positive outcomes for society simultaneously. It's critical for long-term business success. "Let me be very clear," says David Blood, co-founder and senior partner of Generation Investment Management. "I categorically believe that focusing on environmental, social and governance performance improves business performance in the long-term. And when businesses behave sustainably, robust economies develop."

Impak offers an example of disruptive technology being leveraged for social good. The company uses its own cryptocurrency, called impak Coin, to support the growth of the impact economy. Its app (to be launched in late 2019) allows consumers to find and purchase from responsible businesses. As consumers make purchases, they are rewarded with impak Coin, which can in turn be spent at a responsible business.

To address social issues, leaders must first understand them. Annette Verschuren, chair and CEO of NRStor Inc., believes that raising awareness on issues such as climate change, inequality and biodiversity loss should be a priority for educators.

First, do no harm

Developing and deploying even well-intentioned technology involves risk. Conference attendees identified two different types of risk: project failure and social harm. These risks should be managed differently.

Risk of project failure

Risk of project failure is an inherent part of innovation. "Success and failure live in the same neighbourhood," says Chelsea Hicks-Webster, operations manager of Ivey's Centre for Building Sustainable Value. "The only way to avoid failure is to keep doing what you've always done."

Conference attendees described how fear of failing is eroding the motivation of practitioners to seek new solutions. This is a missed opportunity, especially in mental healthcare, where disruptive technology is still emergent. The lack of a proven set of technologies upon which to incrementally improve creates space for more radical innovation and improved patient outcomes. Attendees called for decision-makers to tolerate greater risk of project failure, to increase the probability and scale of impact.

Risk of harm

Even technology that's intended to create value for society can have unintended, negative consequences. For example, big data creates opportunities for personalized medical care, but also increases risk to patient privacy and data security. Decision-makers should understand the potential risks of the technologies they develop and deploy, and take assertive measures to mitigate them.

Today's technology exposes users to risk in three main ways:

1. **Lack of accountability for artificial intelligence:** Artificial intelligence (AI) is already ubiquitous, but the algorithms that underpin its decisions are often complex and poorly understood by users. Building AI that's capable of explaining its decisions and being clear on accountability for those decisions will be critical to building trust, according to Tolga Kurtoglu, CEO of PARC, a Xerox company.

2. **Displacing humans:** Shifts toward technology can affect workers and users. "Many people don't trust AI," says Shanil Ebrahim, health AI leader at Deloitte Omnia. "They worry that if new technologies come into their organization, they will end up losing their job." Replacing human interaction with technology can also adversely affect users. For example, mood monitoring apps help individuals track and analyze their mental states, but can potentially lead to increased depression if the introspection is not balanced by communicating with others, in particular with a care provider. That's according to Cheryl Forchuk, Beryl and Richard Ivey Research Chair in Aging, Mental health and Rehabilitation and Recovery.

3. **Privacy and cyber security:** Using big data, companies can provide personalized interfaces for their users, and doctors can offer custom treatments plans. But protecting users' personal and financial information requires effort.

Evaluate impact

Impact assessment is critical to ensuring new technologies are realizing their intended social value. David Barrett, executive director of Ivey's International Centre for Health Innovation, sees lack of impact assessment as a major challenge in Canada's healthcare sector. "Technology is treated as procurement," he explained. "Purchases are made based on individual preferences, with a missed opportunity to test a handful of technologies to address a well defined problem, assess which demonstrates the best patient outcomes and system value, and then scale the best solution across the country."

PARTNER WITH OTHERS

> "People tend to do big implementations in silos, then roll it out. It just doesn't work."
>
> *– Shanil Ebrahim, Health AI Leader, Deloitte Omnia*

Know when and how to partner

Working with others is critical to developing and implementing disruptive technology. These engagements can vary in scope. Some are quite narrow, involving only individuals in the same organization. Others are broader, involving many organizations and stakeholder groups.

The engagements can also vary in depth. Gordon Lambert, former sustainability and innovation lead at Suncor Energy, identifies two engagement models in a recent **podcast** with the Network for Business Sustainability. He defines *collaboration* as a joint effort to achieve common goals. There's shared accountability for the goals, and participants dedicate significant time. *Cooperation*, he says, is the pursuit of individual interests jointly, which is much lighter touch.

Effective collaboration can produce better outcomes than any individual could achieve on their own, but requires time, coordination and patience. Technology decision-makers should be thoughtful about the outcomes they want to achieve and be strategic about when and how to work with others.

Collaboration in practice

Internally

Eunika Sot, chief operations officer of the social media platform Yuser, emphasized the firm's focus on cross-disciplinary collaboration on the development team. Yuser employs staff with backgrounds in finance, math, technology, media and marketing and requires them to work closely in developing and delivering the product.

Deploying a new technology across an organization also requires internal input and buy-in. Iain Stewart, president of the National Research Council of Canada, identified staff engagement as a key driver for improving morale and finding ways forward during internal changes, including technological change.

With users

Involving end users in technology development and deployment will increase the likelihood that the technology meets a clear user need, according to attendees from the mental health sector. When the technology is ready, the users involved are also more likely to endorse the product to their peers.

With other organizations

Collaboration between organizations with complementary strengths can also be fruitful. Co-developing technology, for example, can result in more innovative technologies, lower R&D costs per firm, and faster development and commercialization.

One example of inter-organizational collaboration is that between start-ups and large organizations. "Startups are agile and capable of developing and testing new technologies quickly," says Martin Wildberger, executive vice president of innovation and technology at RBC. "At RBC, we have a trusted relationship with millions of clients and understand which technologies will add value to them. We leverage this experience to introduce startup technologies that we know will improve the client experience."

CONCLUSION

Disruptive technology is changing the way we live and work. Changes are coming faster and having broader and deeper impact than ever before. Today's decision-makers need to foresee and respond to emerging technologies, or they risk becoming obsolete.

There's also an opportunity – and a critical need – to leverage technology to create value for society. Issues such as climate change, over-consumption and bio-diversity loss are threatening the long-term survival of humanity. Today's decision-makers should seek ways that technology can contribute to solutions.

The 150 leaders who attended Ivey's Canadian Business Frontiers Conference shared candid insights on how technology is affecting their organizations and society. Their insights suggest that technology decision-makers should strive to:

1. **Think long-term** to create the future they envision

2. **Think systemically** to understand potential outcome and hurdles

3. **Create shared value** for business and society

4. **Partner with others** for synergistic outcomes

We hope this report will inform the work of today's technology decision-makers and inspire new, relevant curricula and business support services for the next generation. Educators and advisors play an essential role in preparing a workforce with these skills.