THE FUTURE IS NOT DESTINY

CEO perspectives on realizing Ontario’s potential
THE FUTURE IS NOT DESTINY

CEO perspectives on realizing Ontario’s potential
### EXHIBITS

| EXHIBIT 1 | Leader organizations generate more than $328 billion in revenue | 9 |
| EXHIBIT 2 | Elements of competitiveness | 13 |
| EXHIBIT 3 | Overall levels of advantage across elements of competitiveness | 13 |
| EXHIBIT 4 | Technologies with the most disruptive potential for Ontario by percentage of respondents | 23 |
| EXHIBIT 5 | Importance of technologies with disruptive potential by cluster | 24 |
| EXHIBIT 6 | Canada's value proposition | 26 |
CONTENTS

FOREWORD & ACKNOWLEDGEMENTS 4

EXECUTIVE SUMMARY 6

CHAPTER 1: CHANGING ONTARIO’S ECONOMIC FUTURE 10
CHANGE IS NECESSARY FOR ECONOMIC GROWTH

CHAPTER 2: IDENTIFYING ONTARIO’S COMPETITIVE STRENGTHS 14
TALENT: ATTRACTING AND DEVELOPING ONTARIO’S WORKFORCE 16
RISK-TAKING CULTURE: UNSHACKLING FROM RISK AVERSION 17
STRENGTH OF INDUSTRY ASSOCIATIONS: OPPORTUNITIES FOR CONNECTIONS 18
INNOVATION: COMMERCIALIZING ONTARIO’S QUALITY RESEARCH 20
ECONOMIC DEVELOPMENT AND INFRASTRUCTURE POLICY: CREATING A DYNAMIC BUSINESS ENVIRONMENT

CHAPTER 3: OPTIMIZING THE FUTURE 23
BIG IDEA #1: EMBRACING DISRUPTION: INVESTING IN TECHNOLOGIES WITH DISRUPTIVE POTENTIAL 26
BIG IDEA #2: MARKETING TO THE WORLD: CANADA’S VALUE PROPOSITION 27
BIG IDEA #3: EMBRACING LIFELONG EDUCATION: TRAINING CURRENT AND FUTURE WORKERS 28
BIG IDEA #4: TAKING RISKS: CAPTURING THE FULL VALUE OF TECHNOLOGICAL INNOVATION 29
BIG IDEA #5: THE 100: WOOING TALENT TO CANADA

APPENDIX 30
INTERVIEW METHODOLOGY

END NOTES 33
Seizing the promise

**WE ARE PLEASED TO PRESENT** Working Paper 30 of the Institute for Competitiveness & Prosperity. Working Paper 30 complements the Institute’s traditional retrospective analysis of Ontario’s economy by looking to the future and asking business leaders in Ontario two questions: How bright is Ontario’s future? And what will it take to make it brighter?

The project is the brain-child of Ontario’s Panel for Economic Growth and Prosperity, and is the product of a wonderful partnership between the Institute and Boston Consulting Group (BCG). We interviewed CEOs of companies headquartered or operating in Ontario, spanning the major sectors of Ontario’s economy. We also conferred with “Futurists” – business leaders within leading companies in Ontario that devote the majority of their time to corporate strategy related to disruptive technologies and new business opportunities. Needless-to-say, CEOs and Futurists don’t have a crystal ball any more than the rest of us, but they have considerable resources to make predictions. They have a great deal at stake in predicting the future, and, rightly or wrongly, their decisions will affect the future of Ontario’s economy. Their perceptions are informed and they matter.

In total, we conducted 33 interviews. They were fascinating, structured conversations, and we are extraordinarily grateful to the business leaders that took the time to talk with us. The format of each conversation was the same: Identify the areas where Ontario can “win” over the next 10 to 20 years and tell us what business, governments, and universities need to do to realize Ontario’s potential. What strengths can we draw on? What is holding us back? Where do we need to invest? What needs to change?

This Working Paper reports, summarizes and organizes the rich responses into a story with several sub-plots and twists.

Conversations often started with enthusiasm about Ontario’s and Canada’s strong starting position, which is increasingly recognized around the world. But underneath this was uncertainty. While the responses spanned the spectrum from
optimistic to pessimistic, the unifying theme was that Ontario's future prosperity is not destiny. Ontario is a great place to live and work, but the sources of economic growth and prosperity are shifting and realizing Ontario's promise requires change.

There were several themes around which there was considerable consensus.

First, talent is Ontario's greatest strength. The province is home to a diverse population of skilled workers who contribute across industries, from welders and technicians to data scientists and surgeons. The multiculturalism that abounds in the province enriches the workforce, both by providing access to a broader pool of workers and skills, and by helping businesses develop new international markets. Exports are integral to Ontario’s economic future and a workforce that has intimate knowledge and connectivity to these markets is a source of competitive advantage.

Second, on research we “stand tall.” Leaders across Information & Communications Technology, Financial Services, Manufacturing, and Health clusters all identified scientific research as a key strength, while lamenting a lack of capacity to commercialize this research.

Third, the biggest thing holding Ontario back is our cautious attitude toward risk. Our corporations and governments need to have the confidence to be a first customer of a Canadian company, and we need to shift our mentality from attracting branch plants of leading corporations to building our own here in Ontario to take on the world.

Fourth, as much as Ontario is a wonderful place to live and work, attracting global talent and international capital is hard. Ontario and Canada lack a captivating brand. We have the critical elements – from talent to diversity and stability – but not the compelling “why Canada?” imperative. As part of this, we have to acknowledge the Ontario business inhibitors that CEOs are hearing from investors and business partners, on topics such as taxes, energy costs, and regulation.

Around these broad themes, CEOs were more optimistic about their businesses and sectors than they were about the Ontario economy overall. They offered a rich menu of ideas to turn the dial on Ontario's competitive strengths and weaknesses, and some Big Ideas on what's needed to seize Ontario’s and Canada’s promise. They provided insights into the technologies that were most integral to the future, from general-purpose technologies like artificial intelligence and data science, to more sector-specific technologies like advanced materials and robotics.

Many made the point that Ontario's talent advantage positioned the province at the forefront of developing and capturing the opportunities from innovations such as artificial intelligence or data science. These opportunities span the economy and will be critical to future competitiveness.

The CEOs also reminded us that the pace has accelerated dramatically, and that this requires corporate and government leaders to push for greater innovation. This requires more comfort with risk and experimentation and, in today's world of cross-cutting challenges and solutions, more effective partnering within industry and across the business-government divide.

We wholeheartedly encourage you to dive in and soak up the collective insights as well as the nuances on how Ontario can secure a brighter future from an uncertain one.

The Institute gratefully acknowledges the ongoing funding support from the Ontario Ministry of Economic Development and Growth. We would also like to express gratitude to the many leaders who took time out of their workdays to speak to us and to BCG's entire project team who partnered with us so diligently on this project. We look forward to sharing and discussing our work and welcome your comments and suggestions.
EMBRACING ONTARIO’S PROSPERITY POTENTIAL

Ontario has many natural advantages:

- Abundance of natural resources
- Openness to newcomers
- Quality talent and education system
- Strong startup culture
- Access to key markets

But Ontario faces many structural disadvantages:

- Aging population
- Reliance on traditional manufacturing
- Red tape surrounding industries
- Economic uncertainty

CHALLENGE

How can the province maintain and strengthen these advantages for the future while overcoming its disadvantages?

The project team asked 20 CEOs and 13 Futurists to rate nine elements of competitiveness to determine which can be leveraged for Ontario’s future prosperity.

<table>
<thead>
<tr>
<th>Area of greatest advantage</th>
<th>Talent Access &amp; Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of neutral advantage</td>
<td>Level &amp; Quality of Research, Int’l Talent Attraction &amp; Integration, Strength of Industry Associations</td>
</tr>
<tr>
<td>Area of moderate disadvantage</td>
<td>Economic Development Policy, Infrastructure Investment, Research Commercialization Capability, Capital Commitment to Innovation, Risk-Taking Culture</td>
</tr>
</tbody>
</table>
**EMBRACING ONTARIO’S PROSPERITY POTENTIAL**

Ontario has many natural advantages:

- Areas of greatest advantage
- Areas of neutral advantage
- Areas of moderate disadvantage

**CHALLENGE**

**BIG IDEAS TO OPTIMIZE ONTARIO’S FUTURE**

How can the province maintain and strengthen these advantages for the future while overcoming its disadvantages?

The project team asked 20 CEOs and 13 Futurists to rate nine elements of competitiveness to determine which can be leveraged for Ontario’s future prosperity.

<table>
<thead>
<tr>
<th>Element of Competitiveness</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abundance of natural resources</td>
<td>8</td>
</tr>
<tr>
<td>Openness to newcomers</td>
<td>7</td>
</tr>
<tr>
<td>Quality talent and education system</td>
<td>6</td>
</tr>
<tr>
<td>Strong startup culture</td>
<td>5</td>
</tr>
<tr>
<td>Access to key markets</td>
<td>4</td>
</tr>
<tr>
<td>Level &amp; Quality of Research</td>
<td>3</td>
</tr>
<tr>
<td>Int’l Talent Attraction &amp; Integration</td>
<td>2</td>
</tr>
<tr>
<td>Strength of Industry Associations</td>
<td>1</td>
</tr>
<tr>
<td>Talent Access &amp; Development</td>
<td>0</td>
</tr>
</tbody>
</table>

**Economic Development Policy**

**Infrastructure Investment**

**Research Commercialization Capability**

**Capital Commitment to Innovation**

**Risk-Taking Culture**

Leaders offered five Big Ideas to help Ontario meet its prosperity potential:

<table>
<thead>
<tr>
<th>Idea</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> EMBRACING DISRUPTION: Investing in technologies with disruptive potential</td>
<td>“Ontario can’t stay on the defence. That will ensure defeat. Our companies need to see technologies and consumer trends as once-in-a-lifetime opportunities to grab new markets and secure new customers anywhere in the world.”</td>
</tr>
<tr>
<td><strong>2</strong> MARKETING TO THE WORLD: Canada’s value proposition</td>
<td>“We don’t know our strengths or our competitive differentiators. The story about economic prosperity...will differ based on who is telling it. Let’s create a very simple and compelling narrative around that.”</td>
</tr>
<tr>
<td><strong>3</strong> ADOPTING LIFELONG EDUCATION: Training current and future workers</td>
<td>“A new approach to lifelong learning is equally critical. Both employers and educators need to take their role much more seriously in terms of keeping Ontarians, regardless of age and stage, on the cutting edge of the digital age.”</td>
</tr>
<tr>
<td><strong>4</strong> TAKING RISKS: Capturing the full value of technological innovation</td>
<td>“Technology is being developed so quickly that we cannot develop our minds fast enough to completely understand what this technology has done.”</td>
</tr>
<tr>
<td><strong>5</strong> THE 100: Wooing talent to Canada</td>
<td>“We need a war chest. Pick the 100 most important people in the world and go after them to get them to come to Canada.”</td>
</tr>
</tbody>
</table>
A
midst the economic and political tumult affecting many developed countries, Ontario has an opportunity to leverage its position and forge a path forward. There are many inherent advantages that abound in the province that can make Ontario’s economic future brighter. But, the province must overcome significant barriers if it wants to seize the promise of economic growth and close the prosperity gap.

WHILE ONTARIO HAS A HIGHER SHARE of working age individuals compared to its Canadian and international peer jurisdictions, the province suffers from a prosperity gap driven primarily by low productivity. Therefore, the majority of Ontario’s economic growth is due to increases in employment rather than the added value of working smarter. If the province continues on this trajectory, its economic future is likely bleak. Yet, such a destiny belies the province’s many strengths, from the promising innovations that are produced by a diverse and innovative talent pool to the growing portfolio of startups and businesses exporting goods and services to the world. Given the macroeconomic challenges that can impede the province’s growth, how can Ontario maintain and strengthen its competitive positioning? What are the elements of competitiveness that the province can leverage? And how can we harness technology and these advantages to propel Ontario towards a more promising future?

To answer these questions, the project team (the Institute for Competitiveness & Prosperity and Boston Consulting Group) conducted 33 structured interviews with 20 CEOs and 13 Futurists. The project team defines Futurists as those who spend the majority of their time thinking about future trends and their impacts, with a particular focus on technology. In some cases, Futurists were identified by CEOs of their respective corporations or are CEOs of Information & Communications Technology (ICT) firms.
This Working Paper is a summation of the views of these CEOs and Futurists. Leaders (CEOs and Futurists combined) come from seven clusters: Construction, Financial Services (including insurance), Health, ICT, Manufacturing, Marketing, Design and Publishing, and Other. The majority are from the Financial Services cluster (33 percent) and the ICT cluster (24 percent) (Exhibit 1). Taken together, leaders primarily work for large, export-oriented companies headquartered in Ontario, collectively generating more than $328 billion in revenue in 2015 (latest data available), and employing over 472,000 Canadians (See Appendix for methodology and list of leaders).

While this Working Paper provides thoughts and ideas regarding Ontario’s future, conclusions should not be drawn from these views alone.

---

**EXHIBIT 1**  Leader organizations generate more than $328 billion in revenue

- **33 INTERVIEWS**
- **13 FUTURISTS**
- **20 CEOs**
- **29 ORGANIZATIONS**
- **$328B REVENUE** (2015)
- **~472,000 EMPLOYEES**

Note: Twenty-nine organizations are represented because an interviewee may represent more than one organization as a board member. Revenue and employee information are estimates based on publicly available information and do not account for all organizations (smaller startup firms may be excluded due to lack of information). See the Appendix for a list of interviewees. Source: Institute for Competitiveness & Prosperity analysis based on data from FP500 2016, D&B Hoovers, annual reports and websites of specific organizations, Profit Guide, PR Week, Yahoo Finance, Globe Investor, and LinkedIn.
Ontario has the ingredients for growth… Leaders who felt that Ontario could maintain a 2 percent growth rate believe that the province can leverage its current inherent advantages for future success. These advantages include:

- An abundance of natural resources such as fresh water and minerals.
- Access to quality talent due in part to the concentration of world-class post-secondary institutions. Quality education cannot be easily replicated by other countries, which is a key differentiator between Ontario and other jurisdictions around the world.
- Investments made in innovation as well as the startup and entrepreneurial culture. The burgeoning growth in Ontario’s major cities such as Toronto, Waterloo, and Ottawa are attracting companies and also talent.
- Openness to immigrants, especially in the current climate of anti-immigration sentiments and actions.
- Access to key markets such as the United States.

I love the narrative of transforming from a country of resources to resourcefulness.

...but lack of agility plagues growth. On the other hand, these inherent advantages are stifled by structural disadvantages, which leaders identified as:

- Heavy regulation of certain industries, which can limit innovation, investment, and business activity.
- Both Ontario and Canada’s advantages in natural resources and their histories of traditional manufacturing are not sustainable for the future.
- An aging workforce, along with lower productivity, risks lowering living standards and places fiscal pressures on government services, notably in health care.
- Threats to the province’s economic and political stability due to the rise of populism and protectionism.

Change is necessary for economic growth

Each interview began by focusing on the future and the province’s ability to maintain past economic growth rates. Leaders were asked which macroeconomic challenges might affect the province’s growth trajectory. The project team then asked leaders to identify and rate areas of competitiveness or advantage as well as the impact of technologies with disruptive potential. Along the way, leaders provided commentary and suggestions on how to improve each element, to help move Ontario towards a strong economic future.

Split perspectives on Ontario’s future growth. Leaders appeared to be more optimistic about their own clusters than the future economic outlook of the province. Overall, perspectives were split as to whether Ontario could maintain its present 2 percent economic growth rate. Over 45 percent of leaders believed that Ontario could maintain its current rate, while 37 percent felt that slower growth was on the horizon. The remaining 18 percent were unsure.

Interestingly, Futurists were more optimistic than CEOs – 53 percent believed that Ontario can maintain its current economic growth rate, compared to 40 percent of CEOs. Across clusters, ICT leaders were the least optimistic about Ontario’s future, with 62.5 percent of leaders believing that Ontario could not keep up its current rate of economic growth. Ontario’s economy is at risk, according to ICT cluster leaders, because the province lacks key elements that could propel the ICT cluster into the top world markets.

Canada in general, Toronto, or Ontario have a tremendous opportunity to capitalize on many of the [advantages] it has in front of it. If we can get our act together.

The key is going to be whether we are able to pivot quickly and whether we have the skill set and workforce to do that.
Set against a context of political and economic uncertainty, these structural disadvantages led CEOs and Futurists to question whether Ontario is well-positioned to make a quick pivot. The overall sluggishness in productivity, innovation, commercialization activity, and regulatory change, along with a risk-averse culture are detrimental to the speed and growth that Ontario needs if it is to seize the promise of a bright future.

**The call to action is clear.** In many conversations, there was built-in enthusiasm about Ontario and Canada. Many leaders believed that this is an opportune time to make strategic moves to capitalize on Canada’s global position. To do this, CEOs and Futurists recognized the challenge in front of them: Use the province’s natural advantages while overcoming its structural disadvantages. Regardless of whether leaders believe that Ontario faces a bright or bleak economic future, the call to action is clear: Ontario needs to change. Seizing the potential of the province means embracing the pace of change in industries and innovating to be more competitive. As a whole, the province must make concerted efforts led by strategic decisions to move toward a knowledge economy powered by innovation and export activity. Most importantly, businesses and the Ontario government have the opportunity to undergo this change now. Any delay will result in the province being left behind.

Ontario must capitalize on Canada’s prime position in the world to move ahead on its economic growth aspirations. The challenge remains determining where the province is competitively advantaged and then improving upon these areas to ensure that Ontario’s future remains as bright as its potential.
IDENTIFYING ONTARIO’S COMPETITIVE STRENGTHS

CEOs and Futurists see the bright potential of the province. However, given the economic realities facing the province, leaders recognize that efforts and investments must be made now to leverage the existing advantages of the province, from domestic and international talent to the proximity to the United States. Identifying Ontario’s competitive strengths is the first step.

For Ontario to realize a bright economic future, it must leverage the foundational aspects that make up the province’s business environment and build upon them. To determine what strengths the province can draw upon, the project team asked CEOs and Futurists to rate nine elements or enablers of competitiveness using a 1 to 5 scale (with 1 indicating strong disadvantage, 3 as neutral, and 5 strong advantage) (Exhibit 2).

Overall, only Talent Access & Development is considered a moderate advantage for Ontario (Exhibit 3). More than half of the elements were identified as moderate disadvantages. These results reflect a growing theme the project team found throughout the interviews: While leaders recognized Ontario’s potential within each of these elements, many were unsure whether the province has what it takes to realize this potential. However, some leaders offered recommendations on how to move the dial for most of the elements.
EXHIBIT 2  Elements of competitiveness

- **Talent Access & Development**: How easily can the province’s talent be recruited and developed to maintain or create a competitive advantage?
- **International Talent Attraction & Integration**: How easily can firms source, bring in, and integrate international talent into the province, taking into consideration immigration processing times and policies?
- **Level & Quality of Research**: To what extent does the research, from basic science to research and development, provide the province with a competitive advantage?
- **Research Commercialization Capability**: How easily can firms and innovators commercialize their research and innovations?
- **Capital Commitment to Innovation**: Is there sufficient capital for innovation purposes, including research, startup, and scaling up activities, and how well is this capital used?
- **Infrastructure Investment**: To what extent does existing (primarily public) infrastructure enable the ease of doing business and moving goods and people?
- **Economic Development Policy**: How well does government economic policy, including laws and regulations, support business growth?
- **Risk-Taking Culture**: To what extent does the risk-taking culture affect the ability of businesses, talent, and government to spur growth?
- **Strength of Industry Associations**: To what extent do industry associations help create a competitive advantage for the industry and province?

**EXHIBIT 3  Overall levels of advantage across elements of competitiveness**

Source: Institute for Competitiveness & Prosperity analysis based on interviews with CEOs and Futurists.
TALENT: ATTRACTING AND DEVELOPING ONTARIO’S WORKFORCE

Talent, or the labour force who live and work within the province’s borders, are considered Ontario’s greatest competitive advantage.

LEADERS SPOKE ABOUT TALENT across two elements of competitiveness:

- **Talent Access & Development** – Moderate advantage (4.0)
  - Similar to the Level & Quality of Research, a plurality of leaders (10 in total, split evenly between CEOs and Futurists mainly from the Financial Services cluster) identified Talent Access & Development as a strong advantage for Ontario. Of the 31 leaders who offered comment in this area, 74 percent felt that Ontario’s Talent Access & Development was a moderate or strong advantage.

- **International Talent Attraction & Integration** – Neutral advantage (3.4)
  - While 44 percent of leaders indicated that this area is a moderate advantage, the same percentage felt that it was either a moderate disadvantage or neutral. The majority of CEOs felt that this area was a neutral to moderate advantage (3.6). Futurists were less optimistic, viewing it as a low neutral advantage (3.2).

TALENT IS ONTARIO’S GREATEST STRENGTH...AND GREATEST VULNERABILITY.

Talent Access & Development was most consistently identified as the driver of Ontario’s competitive advantage. Leaders lauded Ontario’s workforce because of strong, world-renowned post-secondary institutions such as the University of Toronto and the University of Waterloo. Graduates of these institutions and others make excellent employees and innovators.

Even though talent is plentiful, especially in engineering, technology, and design, leaders describe the talent pool as wide, but not deep. Specifically, they are seeking talent to fill the following niche shortages:

- **Technology** – Including data scientists, coders, and those with digital capabilities who have the skills to help manoeuvre through the technological changes that are impacting the way businesses operate.

- **Trades** – Outside of the Construction cluster, the demand for trades people across various sectors, particularly those who can work in a manufacturing environment, continues.

- **Business with STEM** – Increasingly, there is a need for interdisciplinary skill sets that blend STEM (Science, Technology, Engineering, and Math) with business and management skills. For example, individuals can no longer offer design or marketing insights based on just knowledge and experience – advice must now be accompanied by data analysis, budgetary implications, and projections. As roles become more multi-faceted, firms seek employees who have complementary technical skill sets like coding, mapping, data analysis, or data visualization, with business skills in finance, marketing, business development, and sales.

The shallowness of the talent pool, coupled with intense competition for scarce talent, creates a zero-sum game in which companies within emerging clusters or sectors poach from one another or undergo extensive international recruitment processes to find suitable employees. Even when these capable workers are hired, companies in more attractive regions, such as Silicon Valley, pose a constant threat to retaining these individuals.
To stem the tide of talent leaving the country, and to address the slowing down of labour market growth due to an aging population, leaders looked to immigration. In fact, they felt that Ontario – and Canada – has an incredible opportunity to capitalize on the anti-immigration sentiment in the United States and the United Kingdom following the election of President Trump and the Brexit vote, respectively.

Leaders were proud of Ontario’s multiculturalism and openness to newcomers, two of many reasons why the province is an attractive place to live and work. Having a multicultural workforce that understands international markets and can speak native languages is a strong competitive advantage, especially when exporting, which is key to business and economic growth. Immigrants can also bring an entrepreneurial mindset and diverse perspectives that support innovation.

But, Ontario must first recruit and integrate newcomers into the labour force and society in order to unlock their economic potential. Leaders highlighted barriers to attracting this much-needed talent. Many bemoaned immigration delays and expressed the need for a seamless – and most importantly short – process to bring in talent. Many CEOs recruit globally to fill very specific positions, primarily at the executive level. But when paperwork takes six months, a year, or even longer to process, there are profound, adverse implications on the competitiveness of an organization.

As attractive as Ontario is as a place to live and work, high income taxes can make it very difficult to get interested professionals to actually make the move. For executives and professionals from the US, in particular, companies often find it hard to make the case for moving to Canada, unless for short stays. Higher income tax rates and a low Canadian dollar make it difficult to compete against salaries paid in US dollars on an after-tax basis. For Financial Services firms, leaders said that they simply cannot match the salaries offered by large US companies.

In the event that an executive does come to Canada and stays for five years or longer and then decides to leave, a “departure tax” must be paid, a burden that all but large companies cannot afford. Coupled with Ontario’s higher cost of living, particularly in the Toronto Region, the attractiveness of the province is significantly diminished.

However, CEOs were confident that Ontario remains a great place to live despite the lower compensation levels and higher tax burden. Many CEOs who come from outside of Ontario choose to stay in the province because the quality of life and culture are unparalleled.

Moving the dial: Leaders said that investing in domestic and immigrant talent should be the province’s highest priority. This is a joint effort. Businesses need to recruit talent while government facilitates this process. Recruitment strategies for talent at every level and across all industries must advertise Ontario’s great lifestyle and describe the exciting and interesting projects companies are involved with. In cases where companies are not well-known, media attention showcasing the “cool factor” associated with Ontario’s burgeoning firms can also be extremely helpful. The most important step is getting international talent to come to Ontario; once here, CEOs believe that the quality of life will be a major factor in retaining them. Achieving this requires a strong and clear brand for Canada – a Big Idea explored in Chapter 3.

For the existing workforce, CEOs acknowledged their responsibility to train their workers, particularly in trades, and to identify their potential. On the other hand, these leaders said that the educational curriculum must be nimble enough to impart the skills that would build the foundation for an interdisciplinary skill set, and it must start when a child first enters school.
RISK-TAKING CULTURE: UNSHACKLING FROM RISK AVERSION

The element that generated the most discussion was Risk-Taking Culture as it was considered Ontario’s greatest competitive disadvantage.

ONLY A SMALL MINORITY (14 percent) of leaders said that Ontario has a risk-taking culture. The majority (79 percent) ranked Risk-Taking Culture as a strong or moderate disadvantage (2.1).

Risk aversion was discussed throughout the interviews on nearly all other elements of competitiveness. Therefore, Risk-Taking Culture will be raised in the remaining sections of this chapter.

Risk aversion is not necessarily negative, but too much can stifle innovation, which in turn hurts the long-term growth potential of companies, customer experiences and choices – and Ontario’s economic future.

Much of the rhetoric around low risk behaviour and overall risk aversion is steeped in the culture of Canada. Government presence, especially in highly regulated clusters, injects a strong conservatism into these industries. Stiff regulations keep businesses from taking bold, risky actions. In fact, two CEOs of companies that were government regulated or owned were wary of too much risk-taking as it could result in financial ruin. Yet, the regulations can be so onerous that any firms other than large, domestic ones cannot stay afloat in their attempts to adhere to the rules.

UNLESS WE FUNDAMENTALLY ADDRESS (THE MINDSET OF RISK TOLERANCE AND RISK AVERSION), WE ARE GOING TO BE COMPETITIVELY DISADVANTAGED.

Moving the dial: To shift away from risk aversion, the structures and incentives of corporate Canada and governments need to align with greater risk taking. This means giving capital longer time horizons for returns on investment, increasing risk tolerances on institutional and retail investors’ portfolios, and incentivizing leaders to experiment and collaborate in new and innovative ways. In highly regulated industries, allowing for more competition can help loosen the risk aversion within these sectors.
STRENGTH OF INDUSTRY ASSOCIATIONS: OPPORTUNITIES FOR CONNECTIONS

Industry associations play a pivotal role in a business environment, bringing together actors to share knowledge, ideas, and resources for collective action.

THE STRENGTH OF INDUSTRY ASSOCIATIONS was viewed as a neutral advantage (3.2) for Ontario overall.

The role of industry associations is often not well-known, leading a minority of leaders to question their effectiveness and the belief that they can impede growth. But, the CEOs of the Health cluster felt that industry associations (in particular the Council of Academic Hospitals of Ontario) were very important and were a strong advantage for the province. Interestingly, 35 percent of leaders rated the Strength of Industry Associations as either a moderate or strong advantage for Ontario, while the same percentage felt that it was neutral. Arguably, the clusters that felt this area was an advantage already had positive experiences with industry associations (Health and Financial Services).

However, not all clusters have industry associations while others have too many, creating a fragmented landscape through which to navigate interests. This fragmentation, as one CEO identified, can limit the cluster’s effectiveness.

“THERE ARE TOO MANY AND IT’S VERY FRAGMENTED. BUT, THEY’RE GOOD BECAUSE THEY ENCOURAGE MUTUAL ACCOMMODATION AND A MOVING FORWARD CULTURE.

Moving the dial: Even amongst those leaders who identified the Strength of Industry Associations as a moderate disadvantage for Ontario, many still believe that industry associations offered opportunities to connect and bring actors together.

Specifically, the project team finds that industry associations are effective when they have an established role within a cluster to develop a shared set of priorities that are achieved because members have “skin in the game.” The collective action and single voice of an industry association can improve the overall situation of a cluster and foster a collaborative spirit within and across clusters.
INNOVATION:
COMMERCIALIZING ONTARIO’S QUALITY RESEARCH

CEOs and Futurists agreed that innovation is the backbone to future economic growth. But the province still lacks the enabling conditions for success to commercialize quality research into exportable goods and services.

GIVEN THE PACE OF CHANGE in the global marketplace, along with the horizontal use of new technologies such as the introduction of artificial intelligence (AI) in traditionally non-digital industries, firms and talent have to get better at experimentation. Doing so creates new approaches to innovation to develop exportable goods and services.

The project team asked leaders to rate three elements along the innovation pipeline:

- **Level & Quality of Research** – Neutral (3.8) – While CEOs and Futurists rated this as neutral (38 percent), most leaders across the ICT, Financial Services, Manufacturing, and Health clusters identified health research in Ontario as an area of incredible growth and strength.

- **Research Commercialization Capability** – Moderate disadvantage (2.5) – This is driven primarily by CEOs across all clusters who provided a score of 2.3, while Futurists were considerably more optimistic (3.0 or neutral).

- **Capital Commitment to Innovation** – Moderate disadvantage (2.3) – Only 35 percent of leaders felt that this area was a moderate or strong advantage while the remaining 65 percent ranked it as neutral or a moderate disadvantage.

ON RESEARCH, WE STAND VERY TALL.

In addition to the clusters that traditionally have a strong research focus such as Health, other clusters recognize the importance of research for the future of their companies and the province. For large banks, there has been a shift in recent years toward conducting leading-edge research on technologies to improve bank operations and profitability and embrace impeding disruptions. A greater percentage of revenue is now spent on research, often partnering with Fintech companies to do so.

IF ONTARIO FIRMS DON’T MATCH THAT PACE OF INNOVATION, WE RISK BECOMING SUBORDINATE TO THE GLOBAL TECH PLATFORMS, WHICH WILL COST THE PROVINCE BOTH REVENUE AND JOBS... ONTARIO NEEDS TO POSITION ITSELF AS THE GO-TO PLACE FOR CORPORATE INNOVATION.

However, leaders were less optimistic about Research Commercialization Capability and the associated Capital Commitment to Innovation, with 22.5 percent seeing it as a strong disadvantage. In fact, one CEO felt that this is the most pressing disadvantage for the province and the country as a whole. Left unchecked, they said, the lack of venture capital (VC) will cause much of the revenue, potential for profit, and talent to leave Canada, creating a vicious downwards cycle.
According to CEOs and Futurists, there is enough startup capital within or flowing into Canada to fund good business ideas. But later stage financing (above $10 million), for when firms are generating revenue and possible profit, is much harder to source. As a result, growing companies often seek out US venture capitalists for later stage VC funding.

On the capital side, while CEOs felt that Canada has some of the most generous R&D tax incentives in the world, unlocking the capital to use for R&D and business growth is blocked primarily by those managing the funds. Many CEOs found the talent managing the funds were too risk averse and have a “banking” or conservative mentality. Anecdotally, leaders stated that even Ontario’s pension plans, which are some of the largest in the world, are also hesitant about entering the VC space because of the “messiness” of innovation, but also due to the long-term horizons (greater than five years) for returns on investment. The reinvestment levels into core and adjacent businesses that would foster the necessary innovation to maintain a firm’s competitive advantage are not reflecting the longer term time horizon and risk appetite of firms in other countries or regions.

The same impatience that plagues Capital Commitment to Innovation also affects Research Commercialization Capability. According to some leaders, many companies are more focused on meeting short-term goals to please shareholders and maintain operations than diverting resources toward commercializing research. Some Futurists were very frank about the lack of excess revenue devoted to long-term causes including research. The province is not home to large anchor firms such as Apple or even Google to do so. Commercialization can also require a long time to come to fruition, and can also be capital intensive. Some leaders offered that family-run organizations are better at this because of their long-term thinking and planning, but as the majority of companies are public and not Canadian-owned, commercialization is not fast enough nor at the scale that would help drive economic growth.

The lack of Canadian-owned firms also affected the level of research activity. For example, CEOs of Financial Services companies and hospitals that are primarily Canadian-owned agreed that there is a lot of research conducted within their respective organizations and often in partnership with others. While some research is conducted in Ontario, the CEOs of branch plant or subsidiary companies in the Manufacturing cluster, said that research is often further upstream across global supply chains or closer to the headquarters that are outside of Canada. Therefore, many manufacturing companies must rely on their suppliers to produce innovative Canadian parts and supplies for their products. Commercialization is occurring, but CEOs felt that the province lacks a critical mass of these successes.

Moving the dial: CEOs and Futurists said that Ontario firms need to “unshackle” themselves from the culture of risk aversion. This means taking a long-term view on investment decisions and embracing failure, which requires being courageous at all levels of the supply chain. Firms in both the private and public sectors that have long-term growth as an objective should examine the inherent structures that stifle innovation and rectify them. A culture of risk must also permeate the structures that surround an organization within a cluster ecosystem. This includes the education system that produces talent, the laws that regulate what is acceptable behaviour, and the venture capital that funds business growth.

Finally, leaders emphasized collaboration. The speed of change within clusters warrants closer and increased partnerships between firms and suppliers to work iteratively to develop innovative solutions, services, and goods instead of waiting for “fully baked global solutions.” This is particularly pronounced in the Manufacturing cluster. For organizations engaged in research, collaboration means connecting with other global research and innovation centres to engage in more research across borders. This is one way to ensure that Ontario is part of the global innovation pipeline, compensating for the lower levels of research across the clusters in the province.
ECONOMIC DEVELOPMENT AND INFRASTRUCTURE POLICY: CREATING A DYNAMIC BUSINESS ENVIRONMENT

While CEOs and Futurists recognized government efforts in economic development and investments in infrastructure, there remain key challenges that prevent the ease of doing business within the province.

ECONOMIC DEVELOPMENT POLICY was discussed across two lines: policy and regulation. Government policy introduces new programs to support business growth while regulation keeps unwanted behaviours and actions at bay. Infrastructure Investment, an element of competitiveness, is a policy area that can enable the ease of doing business, moving goods and people to help create a competitive advantage.

The policy side seems very progressive, but the regulatory side feels like it’s from a developing country.

Overall, Economic Development Policy was considered to be a moderate disadvantage (2.9). While CEOs rated this area as a moderate disadvantage (2.3), Futurists saw this area as a neutral advantage (3.4). Futurists within the ICT cluster were most optimistic about Ontario’s Economic Development Policy, arguing that it is a moderate advantage, higher than the neutral or lower rankings given by other leaders. This stems from a recognition of the investment and efforts made by the Ontario government to grow the economy over the past couple of years.

The province’s lack of Infrastructure Investment becomes a moderate disadvantage (2.6). While most leaders within each cluster had relatively similar views on Infrastructure Investment, CEOs and Futurists within the Financial Services cluster were definitively split on this area as either an advantage or disadvantage, but none felt that it was neutral.

Comments on Economic Development Policy, and Infrastructure Investment as an area of public policy, are focused on the ease of conducting innovation and doing business, including the movement of goods, people, and capital across regions. Government should remove barriers to business operations and expansion, allowing firms to generate economic prosperity for all Ontarians.

The fact that Infrastructure Investment and Economic Development Policy were ranked as moderate disadvantages are explained by what leaders thought needed to be improved, specifically around physical and digital infrastructure and costs, and trade and tax structures that limit their ease of doing business.

On physical infrastructure, the majority of CEOs advocated for a high-speed rail connection along the Kitchener-Waterloo-Toronto corridor. One CEO revealed that their employees make 26,000 trips through the corridor each year. The lack of consistent and speedy transit between the two regions is a major impediment to attracting talent and capital. ICT cluster leaders outside of this corridor also argued for the high-speed connection to stretch to Ottawa, home to a large ICT cluster, including software.

A number of leaders also expressed concern over the amount of traffic congestion in the Toronto Region. Although working remotely or outside of Toronto proper or the downtown core are options, a few CEOs believe that this could adversely affect a company’s culture.

Second, several CEOs also highlighted the high – and rising – costs of hydro and electricity, which are particularly onerous on manufacturers. The close proximity to the US may make it more cost-effective to move operations south where states offer rebates and lower hydro costs in an effort to lure companies out of Canada.
The systems used to facilitate the movement of money were identified as an interesting example of aging infrastructure that can impede business operations. Doing so without downtime requires that services such as credit bureaus are online. However, the credit bureau has an hour of downtime daily. In addition, the lack of electronic services offered by government agencies like the Canada Revenue Agency (CRA) means that Financial Services companies cannot easily check tax returns, relying on customers to go through lengthy, paper-based processes for many transactions, from insurance to pensions, thus increasing the incidences of fraud. The lack of investment in adopting the newest, most secure technology by the CRA is slowing the growth of Fintech firms.

Finally, CEOs suggested that a lack of affordable housing means that workforces are forced to move farther away without reliable transit, increasing their commute times and executive talent has less desirable housing options. Many CEOs argued that the lack of affordable housing impacts not only job performance, but also the lifestyles and welfare of employees. Similar to infrastructure, leaders identified poor Economic Development Policy in the areas of interprovincial trade and taxation as limitations to business operations and expansion.

Interprovincial trade barriers, like those within the wine and beer industry, keep manufacturers small because products that come from another province are considered foreign, and are subject to an additional tax. While this protects provincial brewers, it stifles a company’s ability to grow. Companies that want to export internationally do not have the resources to scale from a market of 13 million Ontarians to countries like China without first having an incremental growth plan that includes expanding to the rest of Canada and into the US first.

On taxation, in addition to the issues related to personal income tax, discussed earlier, corporate income tax rates such as the small business deduction can also incite businesses to stay small and limit business operations. Urban taxes and regulations in many Toronto neighbourhoods are subject to the forces of gentrification. In some areas industrial lands now abut residential areas, and noise limits and other laws for residential areas are then applied to these sites. According to one CEO, while this makes sense for residents, government needs to harmonize bylaws to ensure that businesses and residents coexist.

CEOs and Futurists appreciated the importance of regulation, but also recognized that it can stifle innovation and drive away ideas and capital because regulations are too costly or onerous to overcome. It can also mean that it is extremely difficult for new entrants to compete within a cluster because it is not a level playing field. The administrative and legal support to meet regulatory requirements is too costly. This is a serious risk to the future of the province as innovation is considered the driver of Ontario’s future economic growth.

Moving the dial: The majority view is that government cannot attract and invest in business development across all sectors. Instead it must be intentional and target the needs of specific areas.

In addition to having a comprehensive infrastructure plan that takes into consideration shared jurisdictions, the Ontario government needs to increase connections with the private sector to determine areas of improvement, especially in areas that are beyond physical infrastructure.
Regardless of whether the province can sustain its current growth rate, one thing is clear: Ontario must change. The elements of competitiveness that gave the province its advantages in the past can no longer sustain or ensure the future. Instead, concerted efforts must be made toward innovating, investing in technologies, and making big, bold moves across clusters. Throughout the interviews, leaders shared five broad solutions, or Big Ideas that would help Ontario realize its potential based on its existing strengths, primarily around talent and innovation.

The first Big Idea is investing in technologies with disruptive potential. There is a growing understanding among leaders that the impending global challenge will be whether Ontario has the critical capabilities to remain competitive in spaces that will be fundamentally transformed by these technologies.

The Big Idea that was most prominent in the first few interviews was Ontario’s value proposition to the world. As a result, the project team incorporated this question into all subsequent interviews. This value proposition needs to be shared with everyone, including investors, visitors, and domestic and international talent, so that we can attract those abroad and retain the domestic talent in this province.

The remaining three Big Ideas cover most of the elements of competitiveness within this Working Paper, but focus primarily on talent and the people who work, live, and play in Ontario. The province needs to make major changes now to fix some of the structural challenges that prevent economic growth and to ensure that talent – our greatest competitive advantage – is prepared for the future.
BIG IDEA #1
Embracing disruption: Investing in technologies with disruptive potential

Leaders recognized that automation, disruption, and digitalization will – if they have not already – become the significant driver of competitiveness across all industries. As a result, all Ontario firms must embrace these changes in order to develop competitive advantages.

There are several technologies that are horizontal in nature, such as machine learning and artificial intelligence, data and analytics, design, and digital security. Others such as agricultural technology and advanced materials are more cluster-specific. The prevalence of these technologies, particularly the horizontal ones, reinforces the need to develop the relevant technological capabilities in order to seize the potential of the province. They also represent a vast opportunity for a new mindset and model to embrace new partnerships, which many leaders are already doing, and to work with suppliers, startups, and perhaps even existing competitors to build and use these technologies to become more efficient and do new things.

The majority of CEOs and Futurists are already investing in and incorporating these technologies into their operations and research activities. But what opportunities do these technologies bring? And which technologies affect each cluster? The project team asked leaders to identify five technologies that had the most disruptive potential to their cluster.

Machine Learning & Artificial Intelligence (AI) was determined by 83 percent of leaders responding as the technology with the most disruptive potential (Exhibit 4). Many CEOs are already investing in this technology to maximize customer satisfaction. Data & Analytics came a close second with 69 percent of leaders. Some CEOs considered Data & Analytics not necessarily a disruptive technology, but a regular part of doing business. Digital Security, identified by 45 percent of leaders, is used most prominently by the Financial Services cluster that invests in this technology.
because it is key to gaining customer trust and retention. Finally, 38 percent of leaders from a broad range of clusters believed that Biotechnology would have an impact on their business. Futurists provided examples, including fingerprint authentication for security and DNA for a quick medical diagnosis or insurance quote.

The horizontal nature of these technologies that enable them to be applied across a wide swath of clusters creates a compelling business case to increase investment in these technologies for the near- to long-term success of the province.

The current exception is Blockchain, which garnered the same response as Biotechnology at 38 percent. Aside from CEOs in the Financial Services cluster who are investing in this area, and those who recognized the power of using Blockchain, it remains a technology without a widespread use. This is partly because many companies, like banks, use Blockchain technology for backend purposes. In order for this technology to become ubiquitous, the infrastructure and the story of Blockchain needs to be accessible to the general public.

Not surprisingly, the ICT and Financial Services clusters identified nearly every disruptive technology as important to their operational success (Exhibit 5). The Construction
cluster, on the other hand, uses the fewest technologies. These technologies are also erasing lines between clusters, enabling firms to enter new markets and access new customers. One Futurist described the business opportunities available with the onslaught of autonomous vehicles, in which drivers are no longer spending time driving. Instead, they could interact with the vehicle to complete errands related to their financials, such as paying bills. Alternatively, biotechnology could quickly produce a quote for life insurance based on the current vitals of a passenger in an autonomous vehicle.

THE SCARIEST THING WOULD BE NOT INVESTING AT ALL. WE SHOULDN'T TRY AND LEAD IN EVERY CATEGORY, BUT WE SHOULD TRY TO ENSURE WE DON’T MISS ANY CATEGORY.

As these technologies continue to enable a convergence of clusters, CEOs and Futurists explored the opportunities for clusters to collaborate, particularly with the ICT cluster. Software is seen as the future transmission of the car and there are opportunities to bring more technology into health care. For those in the Financial Services cluster, 2017 is considered a banner year for bank-Fintech partnerships. There is also potential for new innovations to come from the application of different areas of science, such as physics to health care.

ONTARIO CAN’T STAY ON THE DEFENCE. THAT WILL ENSURE DEFEAT. OUR COMPANIES NEED TO SEE TECHNOLOGIES AND CONSUMER TRENDS AS ONCE-IN-A-LIFETIME OPPORTUNITIES TO GRAB NEW MARKETS AND SECURE NEW CUSTOMERS ANYWHERE IN THE WORLD.

On the other hand, the rise of technologies necessitates the need to embrace them to ensure future success. If firms within the Construction cluster do not adopt technologies, they risk being left behind and taken over by new entrants from outside the construction world who nevertheless possess construction capabilities thanks to technology. The call of Futurists and CEOs is to invest in these technologies and create the structures around them to enable their potential as these technologies are already on the path to becoming widespread reality.
Many leaders suggested that Ontario was not attracting enough attention on the world stage to stimulate the kind of growth they were looking for. Some CEOs and Futurists, particularly those who work closely with Americans argued that this is likely a culture problem as Canadians are “too humble.” According to one Futurist, Canadians who work in Silicon Valley are not strong enough ambassadors for Canada. However, conversations with CEOs and Futurists made it abundantly clear that regardless of whether or not this is a culture problem, Ontarians are not aware of the province’s strengths or at the very least, cannot articulate them in a cohesive way.

The lack of recognition of Ontario, especially on the global stage, means that less venture capital investment and talent are coming into both the province and the country as a whole. It also makes it harder for those looking to export their goods and services. Outside of clusters like Financial Services, the province needs a stronger brand.

At first, the project team talked to leaders about Ontario’s value proposition, but was quickly advised that it was better to expand the geographic scope to Canada. As Canada’s largest province, the various elements that the CEOs and Futurists identified as aspects of the value proposition could be applied to Ontario and Canada (Exhibit 6).

This value proposition exemplifies what Canada offers the world. From those who desire to live and work here, to those who want to fund ideas and companies, the openness, collaborative attitude, and diversity of Canadians forms the basis of the world-leading, stable institutions that are situated here.

Some CEOs and Futurists offered tag lines for branding Canada, such as “Trust the North.” Actualizing this value proposition should be done by those who specialize in branding, but it is the hope of the project team that every corporate leader, investor, customer, employee, and more, are able to recognize and share this message to ensure that we share a consistent and concise story. Canada is in a prime position to deliver a message that is shared and recognized by all those choose to work with us.

**EXHIBIT 6  Canada’s value proposition**

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>High standard of living</td>
<td>Diversity and multiculturalism</td>
</tr>
<tr>
<td>Economic and political stability with rule of law and a parliamentary democracy</td>
<td>Collaboration</td>
</tr>
<tr>
<td>Skilled workforce</td>
<td>Openness and inclusion</td>
</tr>
<tr>
<td>Access to natural resources</td>
<td>Ambition</td>
</tr>
<tr>
<td>Close proximity to the United States</td>
<td></td>
</tr>
<tr>
<td>Strong education system</td>
<td></td>
</tr>
<tr>
<td>Access to 1.2 billion customers once CETA is fully implemented</td>
<td></td>
</tr>
</tbody>
</table>

Note: CETA is the Canada-European Union Comprehensive Economic and Trade Agreement, which was signed by the federal government in 2016 and received royal assent in May 2017. Source: Institute for Competitiveness & Prosperity analysis based on interviews with CEOs and Futurists.
CEOs and Futurists alike said that Ontario’s strong education system was one of the key ways to prepare the next generation of workers. While leaders felt that post-secondary institutions produced outstanding talent, there were a number who felt that the overall education system is not yet oriented toward producing 21st century skills. In particular they believed there is a severe disconnect between one’s education and career. Given how leaders view the future of Ontario and the economic and political context surrounding the labour force, leaders are calling for a change in the education system – and fast. Ultimately this is a call to shift toward lifelong learning so that the skills and knowledge are future-oriented.

CEOs and Futurists said that lifelong learning begins the second a child walks into a kindergarten classroom. Learning to code and interacting with technology is important, but the pivotal skill sets that are necessary in the future, particularly creativity and collaboration, are currently not sufficiently honed in schools. The current educational pedagogy is predicated on power and control, according to one Futurist, and not enough on critical analysis and collaborative problem solving.

Work-integrated learning was a frequent recommendation made by leaders to close the skills and employment gaps for post-secondary students. Many CEOs praised and encouraged the development of co-operative programs, such as those offered by the University of Waterloo. The federal and Ontario governments have been advised of similar recommendations.9 Of course, this requires collaboration between employers of firms from all sizes and educational institutions. But these two groups must also work amongst themselves. One CEO found that universities are often reluctant to work together within the same province. Instead, they are more likely to sign agreements with international institutions. Many CEOs reminded the project team that the size of Ontario’s market and population simply does not afford institutions and organizations the luxury of going it alone. Working together is the only way to achieve the scale and change en masse that this province needs to create the educational system of the future.

A NEW APPROACH TO LIFELONG LEARNING IS EQUALLY CRITICAL. BOTH EMPLOYERS AND EDUCATORS NEED TO TAKE THEIR ROLE MUCH MORE SERIOUSLY IN TERMS OF KEEPING ONTARIANS, REGARDLESS OF AGE AND STAGE, ON THE CUTTING EDGE OF THE DIGITAL AGE.

Finally, a few leaders mentioned learning well into one’s career. Training “turns workers into powerhouses” and if done across the board, it could transform the province’s entire labour force. It is also necessary so that the current labour force can develop the skills and knowledge to interact and develop the technologies that can be used to increase innovation and revenue potential.

WE NEED A MORE HONEST CONVERSATION ABOUT THE FUTURE OF EDUCATION IN ONTARIO AND HOW MUCH IT NEEDS TO CHANGE – AND CHANGE FAST. IF THE PROVINCE CANNOT SIGNIFICANTLY REFORM ALL LEVELS OF EDUCATION IN THE NEXT FIVE YEARS, ENORMOUS OPPORTUNITIES IN THE NEW DIGITAL ECONOMY WILL BE LOST FOR GOOD AND A MASSIVE GENERATION OF MILLENNIALS WILL BE CONSIGNED TO SECOND-CLASS CHANCES IN THE WORLD ECONOMY.

BIG IDEA #3
Adopting lifelong education: Training current and future workers

CEOs and Futurists said that lifelong learning begins the second a child walks into a kindergarten classroom. Learning to code and interacting with technology is important, but the pivotal skill sets that are necessary in the future, particularly creativity and collaboration, are currently not sufficiently honed in schools. The current educational pedagogy is predicated on power and control, according to one Futurist, and not enough on critical analysis and collaborative problem solving.

Finally, a few leaders mentioned learning well into one’s career. Training “turns workers into powerhouses” and if done across the board, it could transform the province’s entire labour force. It is also necessary so that the current labour force can develop the skills and knowledge to interact and develop the technologies that can be used to increase innovation and revenue potential.

Work-integrated learning was a frequent recommendation made by leaders to close the skills and employment gaps for post-secondary students. Many CEOs praised and encouraged the development of co-operative programs, such as those offered by the University of Waterloo. The federal and Ontario governments have been advised of similar recommendations.9 Of course, this requires collaboration between employers of firms from all sizes and educational institutions. But these two groups must also work amongst themselves. One CEO found that universities are often reluctant to work together within the same province. Instead, they are more likely to sign agreements with international institutions. Many CEOs reminded the project team that the size of Ontario’s market and population simply does not afford institutions and organizations the luxury of going it alone. Working together is the only way to achieve the scale and change en masse that this province needs to create the educational system of the future.

A NEW APPROACH TO LIFELONG LEARNING IS EQUALLY CRITICAL. BOTH EMPLOYERS AND EDUCATORS NEED TO TAKE THEIR ROLE MUCH MORE SERIOUSLY IN TERMS OF KEEPING ONTARIANS, REGARDLESS OF AGE AND STAGE, ON THE CUTTING EDGE OF THE DIGITAL AGE.

Finally, a few leaders mentioned learning well into one’s career. Training “turns workers into powerhouses” and if done across the board, it could transform the province’s entire labour force. It is also necessary so that the current labour force can develop the skills and knowledge to interact and develop the technologies that can be used to increase innovation and revenue potential.

WE NEED A MORE HONEST CONVERSATION ABOUT THE FUTURE OF EDUCATION IN ONTARIO AND HOW MUCH IT NEEDS TO CHANGE – AND CHANGE FAST. IF THE PROVINCE CANNOT SIGNIFICANTLY REFORM ALL LEVELS OF EDUCATION IN THE NEXT FIVE YEARS, ENORMOUS OPPORTUNITIES IN THE NEW DIGITAL ECONOMY WILL BE LOST FOR GOOD AND A MASSIVE GENERATION OF MILLENNIALS WILL BE CONSIGNED TO SECOND-CLASS CHANCES IN THE WORLD ECONOMY.
Big Idea #4
Taking risks: Capturing the full value of technology and innovation

Is “risk aversion” responsible for a lack of investment into innovation and new technologies?

Throughout the interviews, CEOs and Futurists questioned whether the province could keep up with the pace of global change, from the shifting political and economic tides, to the speed of innovations and technologies being introduced on the global marketplace. A few CEOs and Futurists believe that the pace of technological advancement and global innovation has accelerated so much that it is beyond the grasp of many firms and consumers alike. The intense speed of change creates a constant “need to catch up,” which is not attainable for many. This creates a significant gap between those who have a clear business model for exploiting innovation and technology in order to develop a competitive advantage and those who do not.

Technology is being developed so quickly that we cannot develop our minds fast enough to completely understand what this technology has done.

When things are moving so quickly, the fear of not catching up can stifle the ability to embrace investing in new technologies or collaborating with others. As a result, many businesses do not capture new value innovation to the same degree as global competitors, and customers are left with fewer Canadian product and service choices. Where competition is predominantly local or regional, technology advancement will affect our companies’ health only slowly. But companies competing globally need to defend their market shares and capture growth opportunities from new technologies.

Often, this phenomenon has been described in our conversations as a “Canadian culture of risk aversion.” One CEO said that Canadians are more likely to adopt a particular technology or strategy once someone else has taken the innovator hurdle. This contrasts with competitive playing fields in other countries, such as Australia, where competitors take new risks and desire more often to be a first mover. This follower versus leader mentality often means that growing Canadian companies can only return to Canada as a market once they have established a presence elsewhere. The need for proven success is due to the fear that being a leader – and therefore taking a significant risk – can plunge a business into bankruptcy.

The way forward for businesses and government, as suggested by CEOs and Futurists, is a mindset shift that focuses on the value of innovation and technology and an innovation model that fosters tight collaboration with customers, suppliers, and other ecosystem participants. For firms, this means recognizing the benefits of collaborating with other companies and reimagining the value chain with innovation and new technology in mind.

Customers must also understand this full value and use innovative services with higher rates of adoption to drive learning and economic benefits. It is imperative that firms learn to tell the story of how and why technology can improve lives and businesses while still enabling users to maintain control. It is also about celebrating and recognizing how technological adoption can benefit businesses and individuals and how these are investments rather than simply expenses.

How do we...get over the hump [that technology is] actually very low risk? We talk about technology with capital T and big changes, but where you get the productivity gains is when you think about adopting baseline technology by a much bigger group of people.

For technology specifically, helping firms understand how technology can help them with their specific challenges, and avoid a situation of paralysis based on the overwhelming perspective of wide, sweeping changes, is critical. The focus on relevant “baseline” technologies and a focused innovation process will drive real economic benefits and competitive advantage. It will encourage companies to increase their investments as they see more tangible benefits faster. It will also lower the perceived risk and overcome the misnomer that technology and true innovation are only attainable by a select few.
BIG IDEA #5
The 100: Wooing talent to Canada

Canada is viewed internationally as a politically stable, welcoming, and inclusive country. Given the shifting political situations in other regions of the world, this is an opportune time for Canada to make a strategic plan to welcome and integrate talent into this country.

Many of the Big Ideas proposed in this Working Paper are audacious and although there is encouraging evidence that some of these Big Ideas are being implemented, more needs to be done and quickly. Canada has an incredible opportunity to capitalize on its current international standing to tackle some major roadblocks in its way to a bright future. Will we stand still or march boldly ahead?

In many ways, Ontario – and Canada – are already doing this and the push and pull factors are sparking the interest of those who would otherwise not see Canada as a viable option. Attracting the 100 most important or talented individuals and encouraging them to come to Canada would raise the country’s profile. These individuals can be talented in a multitude of ways – excellence in music, athletics, business, or intelligence.

The project team proposes the attraction of individual across three streams:

1. **Students** – High achievement-oriented students studying STEM. If also taught business skills, these students could become the business leaders of the future.

2. **Experienced talent** – Those in similar fields to STEM who come or return to Canada as young families.

3. **Executives** – Leaders who have bountiful experience leading and scaling up companies and innovations.

This Big Idea builds off of Big Idea #2 to attract talent to the province. It aspires to create an environment to allow companies to do their best work, with the best people around them, in a diverse, creative, and open-minded society. Executing this strategy requires the coordination and collaboration of businesses, governments, and educational institutions, among others.
B
tween November 2016 and June 2017, the project team conducted 33 interviews with 20 CEOs or equivalent and 13 Futurists from 29 companies. The majority of the leaders worked for large firms across seven clusters.
The breakdown by number of leaders is as follows:

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Sub-clusters (if applicable)</th>
<th>Percentage of leaders</th>
</tr>
</thead>
</table>
| Construction                   | • Electric power generation and transmission  
                                 • Construction products and services                                                   | 6%                    |
| Financial Services (includes insurance) | N/A                                                                                         | 33%                   |
| Health                         | N/A                                                                                         | 9%                    |
| Information & Communications Technology (ICT) | N/A                                                                                         | 24%                   |
| Manufacturing                  | • Automotive  
                                 • Food processing and manufacturing                                                           | 15%                   |
| Marketing, Design & Publishing | N/A                                                                                         | 6%                    |
| Other                          | Does not adhere to traditional cluster definitions or represents more than one cluster         | 6%                    |

Note: The percentage of leaders may not equal 100 percent due to rounding.

While every effort has been made to adhere to the cluster definitions of Harvard Business School Professor Michael E. Porter that the Institute uses, the definitions have been revised to align with traditional industry classifications that are easily recognizable by readers.

The project team prioritized large firms from Ontario’s strongest clusters, then expanded outward. The project team recognizes that a cluster will evolve over time and that Ontario’s cluster portfolio may be very different in the future.

Taken together, leaders worked for 29 primarily export-oriented companies that generated more than $328 billion in revenue in 2015 (latest data available) and employ over 472,000 Canadians.

The majority of interviews asked the following questions, with some deviation, to adhere to the direction taken by the interviewee:

1. Barring a major shift in focus, do you think Ontario’s economy will be able to maintain past levels of GDP and prosperity growth over the next 20 years? If not, what are some key challenges that give you pause (e.g., low labour force growth, lack of innovation, etc.)?

2. If you had to define Canada’s value proposition in a single sentence, what would it be?

3. What are the top five technologies in terms of disruptive potential that affect your cluster?

4. How advantaged do you think your cluster is overall and along the following nine elements or enablers of regional competitiveness? For the areas where you think Ontario is either advantaged or disadvantaged, what are the key strengths and gaps?

5. Moving forward, what are the competitiveness drivers in which Ontario should invest?

6. What are some Big Ideas that could drive future competitiveness, especially within the sector in which you operate?
The project team would like to thank all the leaders who took time to speak about the future of Ontario. While 33 interviews were conducted, others leaders often joined the conversation, in which case their names are included in brackets. Only the main interviewee was included in the total count of responses, but ideas and comments from all leaders were considered in the writing of this Working Paper.

Scott Affleck  
Formerly eBay Canada

Mary-Ellen Anderson  
Microsoft Canada

Michael Apkon  
The Hospital for Sick Children (SickKids)

Jordan Banks  
Formerly Facebook Canada

Steve Beaucesne  
Beau’s All Natural Brewing Company

Steve Carlisle  
General Motors of Canada Company

Dean Connor  
Sun Life Financial Canada

Bruce Flatt  
Brookfield Asset Management Inc.

Donald Guloien  
(and Matt Miles and Peter Wilkinson)  
Manulife Financial Corporation

Leo Grépin  
Sun Life Financial Canada

Phillip Haid  
Public Inc.

Rizwan Khalfan  
TD Bank Group

Lisa Kimmel  
Edelman Canada

Iain Klugman  
Communitech

Shelley Martin  
Nestlé Canada Inc.

Bharat Masrani  
TD Bank Group

Dave McKay  
Royal Bank of Canada

Kathleen O’Neill  
Boards of Finning International Inc., ARC Resources Ltd., and Invesco Canada Funds

Peter Pisters  
University Health Network (UHN)

Brian J. Porter  
Scotiabank

Mandy Rennehan  
Freshco

Sam Sebastian  
Formerly Google Canada

George Soleas  
LCBO (Liquor Control Board of Ontario)

Andreas Souvaliotis  
CARROT Insights

Andrea Stairs  
eBay Canada

Connor Teskey  
Brookfield Asset Management

Frank Vettese  
(and Paul Bien and Blaine Woodcock)  
Deloitte Canada

Don Walker  
(and Frank Seguin and Dave Pascoe)  
Magna International

John Wall  
QNX Software Systems Ltd.

Christian Wentzel  
Solar Provider Group

Eva Wong  
(and Rob Palumbo)  
Borrowell

Mike Woollatt  
Canadian Venture Capital & Private Equity Association

Catherine Zahn  
(and Lori Spadorcia)  
Centre for Addiction and Mental Health (CAMH)
1 See Institute’s Annual Reports for more information on the prosperity gap between Ontario and its peer jurisdictions.

2 The project team interviewed 33 leaders, but in some interviews there were more than one invited interviewee. Only the invited interviewee is included in the total count. See Appendix for a list of all leaders.

3 Note: The names of these clusters have been slightly modified from Michael E. Porter’s cluster definitions. See Appendix for the list of clusters and sub-clusters.

4 This aligns with the Institute’s analysis in Working Paper 27, which finds that Ontarians place greater emphasis on a strong health care system and safety than on more disposable income and higher employment rates. Source: Institute for Competitiveness & Prosperity. “Looking beyond GDP: Measuring prosperity in Ontario.” 2016.

5 Previous Institute analysis found that while the share of later stage venture capital funding increased from 4 percent of total venture capital funding in 1995 to 31 percent in 2015, the size of each deal remained on average $5.1 million, compared to the $11.4 million average size amongst US peer states. Source: Institute for Competitiveness & Prosperity. “Clusters in Ontario: Creating an ecosystem for prosperity.” 2016.


8 The Canada Free Trade Agreement, signed in 2017, will convene a working group to examine the problems in the wine and beer industry but many other industries also require harmonization of rules across provinces in order to lower the administrative and cost burden of adhering to regulatory variations. Source: Internal Trade Secretariat. “Canadian Free Trade Agreement. Consolidated version.” 2017.

Annual Reports
FIRST ANNUAL REPORT – Closing the prosperity gap, November 2002
SECOND ANNUAL REPORT – Investing for prosperity, November 2003
THIRD ANNUAL REPORT – Realizing our prosperity potential, November 2004
FOURTH ANNUAL REPORT – Rebalancing priorities for prosperity, November 2005
FIFTH ANNUAL REPORT – Agenda for our prosperity, November 2006
SIXTH ANNUAL REPORT – Path to the 2020 prosperity agenda, November 2007
SEVENTH ANNUAL REPORT – Leaning into the wind, November 2008
EIGHTH ANNUAL REPORT – Navigating through the recovery, November 2009
NINTH ANNUAL REPORT – Today’s innovation, tomorrow’s prosperity, November 2010
TENTH ANNUAL REPORT – Prospects for Ontario’s prosperity, November 2011
ELEVENTH ANNUAL REPORT – A push for growth: The time is now, November 2012
TWELFTH ANNUAL REPORT – Course correction: Charting a new road map for Ontario, November 2013
THIRTEENTH ANNUAL REPORT – Finding its own way: Ontario needs to take a new tack, November 2014
FOURTEENTH ANNUAL REPORT – Disruptions ahead: The making of a dynamic and resilient Ontario economy, November 2015
FIFTEENTH ANNUAL REPORT – Collaborating for growth: Opportunities for Ontario, December 2016

Working Papers
WORKING PAPER 1 – A View of Ontario: Ontario’s Clusters of Innovation, April 2002
WORKING PAPER 2 – Measuring Ontario’s Prosperity: Developing an Economic Indicator System, August 2002
WORKING PAPER 3 – Missing opportunities: Ontario’s urban prosperity gap, June 2003
WORKING PAPER 4 – Striking similarities: Attitudes and Ontario’s prosperity gap, September 2003
WORKING PAPER 5 – Strengthening structures: Upgrading specialized support and competitive pressure, July 2004
WORKING PAPER 6 – Reinventing innovation and commercialization policy in Ontario, October 2004
WORKING PAPER 7 – Taxing smarter for prosperity, March 2005
WORKING PAPER 8 – Fixing fiscal federalism, October 2005
WORKING PAPER 9 – Time on the job: Intensity and Ontario’s prosperity gap, September 2006
WORKING PAPER 10 – Prosperity, inequality and poverty, September 2007
WORKING PAPER 11 – Flourishing in the global competitiveness game, September 2008
WORKING PAPER 12 – Management matters, March 2009
WORKING PAPER 13 – Management matters in retail, March 2010
WORKING PAPER 14 – Trade, innovation, and prosperity, September 2010
WORKING PAPER 15 – Small business, entrepreneurship, and innovation, February 2012
WORKING PAPER 16 – Making sense of public dollars: Ontario government revenue, spending, and debt, May 2013
WORKING PAPER 17 – Untapped potential: Creating a better future for service workers, October 2013
WORKING PAPER 18 – Taxing for growth: A close look at tax policy in Ontario, October 2013
WORKING PAPER 19 – The realities of Ontario’s public sector compensation, February 2014
WORKING PAPER 20 – Building better health care: Policy opportunities for Ontario, April 2014
WORKING PAPER 22 – Better foundations: The returns on infrastructure investment in Ontario, September 2015
WORKING PAPER 23 – A place to grow: Scaling up Ontario’s firms, January 2016
WORKING PAPER 24 – Licence to innovate: How government can reward risk, February 2016
WORKING PAPER 24.5 – Licence to innovate revisited: How government can reward risk, June 2016
WORKING PAPER 26 – Clusters in Ontario: Creating an ecosystem for prosperity, June 2016
WORKING PAPER 27 – Looking beyond GDP: Measuring prosperity in Ontario, October 2016
WORKING PAPER 28 – Immigration in Ontario: Achieving best outcomes for newcomers and the economy, June 2017
WORKING PAPER 29 – The labour market shift: Training a highly skilled and resilient workforce in Ontario, September 2017