

Tapestry 2019: Trends and Forces Shaping the World

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Executive Summary

We are living in a complex, uncertain time; one that the military would classify as VUCA – volatile, uncertain, complex and ambiguous. Nothing is simple. The world is fractured and it feels to be getting worse by the day. We fight. We bicker. We have lost the ability to come together and find common ground that will advance the position of our collective humanity and the planet which we call home.

Seeds of this fracture were sown decades ago. Whether it was ways that boundaries were created in 1919, attempts to maximize profits, or financial crises. Some leaders have advanced a collective future. Others have sought to destroy it. How are business and organizational leaders meant to navigate in these turbulent and fractured waters? With great difficulty, humility, and agility.

This report attempts to cover the three main issues that I feel are affecting our collective future, and those that we need to address in order to recapture a positive and equitable trajectory into the future. I argue that while we are focused on the here and now of competition and technological disruption, the real and bigger disruption that is brewing is one of social disruption from an angry, fearful and disenfranchised population. We ignore this at our peril. I offer no concrete solutions but hope to provide some food for thought as to what leaders and organizations can do to help address the fracture in our societies, to arrest the growing social disruption looming, and to position themselves for success and be a party to regaining our collective future.

Issue	Considerations
<p>An angry world: Us vs. Them</p>	<ol style="list-style-type: none"> 1. Consider an approach to business strategy that is about the long-term common good: becoming more purpose-driven; removing short-term reinforcing practices; embedding environmental, social and governance (ESG) factors into business DNA; engaging on social issues important to your organizational values, etc. 2. Engage in <u>constructive</u> public policy that benefits business and shared prosperity amidst populism and polarized public, creating “us <u>and</u> them” platforms. 3. Consider participating in prosperity related initiatives such as diversity and inclusion, skills and education programs, helping businesses and leaders understand the need to support broad based prosperity. 4. Work with all levels of government and stakeholders to find solutions to Canada’s competitiveness and unity impasse.

Issue	Considerations
<p>Technology takes over. Or does it...?</p>	<ol style="list-style-type: none"> 1. Ensure that you have an understanding of the key issues, opportunities and risks associated with technology. Be a convener of people with expertise in a broad array of technologies. Engage with employees and customers as to implications. Be prepared to adapt and respond to opportunities that arise. 2. Develop a technology strategy for your organization based on the convening outlined above. Ensure that robust conversations are happening at the board and executive levels with respect to technology as opportunity, enabler, risk and platform. 3. Improve the adaptability quotient of your organization, team and governance to respond to technology opportunities and risks – be nimble and flexible. This includes increasing innovative capacity within your organization. 4. Be prepared for changes to technology policy that will affect the platforms and capabilities of major entities. The power of major platforms (e.g., Google, Facebook etc.) may be reduced in the future and consider what that means for your business strategy. 5. Use technology and platforms for good. 6. Curate relationships of convergence between your business, industry – agriculture, manufacturing, natural resources, energy, etc. – and technology to facilitate business opportunities. This should also involve the research and education sector.
<p>Workforce of the future</p>	<ol style="list-style-type: none"> 1. Understand the issues surrounding AI and automation, particularly as it pertains to how to maximize productivity and margin, but also implications for job loss. 2. Develop a workforce strategy – what will you replace with AI, automation, gig employment, and what you will do with displaced workers in terms of reskilling and retraining. 3. Convene and collaborate with government, business and education to discuss automation, skills, retraining and the gig economy from a policy and best practices approach to ensure competitiveness and appropriate involvement of all parties in programs. 4. Create initiatives to assist workforce with “AQ” – adaptability quotient for both firms and individuals

The Path Forward

How might we avert the looming social disruption that brews as a result of the convergence of these three trends? It is rooted in leadership strength, courage and conviction to think and act differently. It will be about:

1. Collaboration – no one can do it alone. There is too much opportunity and too many grand challenges in the world for one party, or only government or only business to tackle them. We will need strong collaboration. Collaborations that challenge and question the status quo and conventional ways of doing. We will need to think about building and solutions. Ones that unite and share rather than destroy.
2. Adaptation – nothing is staying the same. Adaptation of people, business, government, institutions and non-profits will be essential as the world continues to change, evolve, and disrupt. Adaptation requires that we don't sit around and wait for the solution to be given to us or for it to be mandated – we assess the situation and make changes and deliver solutions that are right for the moment. Adaptation will prove again to be one of humanity's most important traits. Uncertainty, and the resultant adaptation, creates immense opportunity.
3. Preservation – of our planet. Of the vitality and prosperity of our people that enable creation, contribution, and caring. Of the powers of platforms, networks and movements for good, not evil. Of those things that make us uniquely human, that enable connections, and the ability to collaborate and share and support rather than attack and separate.

Introduction

We are living in a fractured world. Socially, economically, technologically, politically, and environmentally. There is a high degree of tension and every day there seems to be something that continues to shift the trajectory of the world into ever greater polar positions. Sure, there are many examples of humanity and common decency every day. The other day I saw someone give a bottle picker a big black garbage bag of cans. The donor got a big hug from the recipient. Those things make you smile. But these days, the world doesn't often seem to be sharing its bottles with those who need them more.

Many will argue that we live in the best time in history; poverty is lower, crime and violence are down, life expectancy is the longest it has ever been. This is true. That is reason to be optimistic about the trajectory of the world.

But a number of trends are converging that suggest we are at risk of stalling or rolling back this progress of humanity. In fact, I argue that the most pressing trends and forces of today are things like technological disruption. However, I believe that it is blinding us to a growing and looming disruption that will eclipse any other form of disruption we are currently facing and that is social disruption.

There is rising inequity. People are angry. They are distrustful. They are retrenching and building walls. Technology is giving us easier and more pleasurable lives but it is reinforcing the bubbles we live in and is exacerbating inequality not only in income but of future job and employment prospects. Finally, at a time when the fires of social disruption are growing hotter and we should be pausing to think about our next moves, we are doubling down on technology through AI and automation that will see millions of people out of work within decades. All of this is creating a brewing storm of social disruption.

We are in a world of us vs. them¹. It is a time where every situation has an enemy. We are polarized. Playing identity politics. Seeking extremes and camps. We are angry and want better. But it doesn't often feel that it is for the betterment of the world and humanity, but rather to create an enemy that we can extract something from instead of collaborating sincerely and genuinely for positive progress.

Don't believe that people are worried and concerned these days? Consider the findings of a 2017 Ipsos Canada Next Studyⁱ that found among Canadians:

- 73% believe heading toward an environmental disaster on current course
- 71% feel economy rigged to advantage the rich and powerful
- 58% believe advancing technology will lead to mass unemployment

¹ I can take no credit for the creation of this concept, for it was Ian Bremmer and his book of the same title that sparked my use of this term for the state of the world.

- 51% feel technology changing so rapidly they can't keep up
- 48% feel personal economic situation will stay same or get worse in 10 years

This report is not meant to be negative, or rosy. Simply realistic; a splash of cold water on the face to wake up to some of the biggest forces and trends going on in the world and pose significant implications for business, organizations, and leaders. This report holds no forecasts. It outlines considerations for leaders to take back into their work and planning so that they may be better prepared for the complex and changing world we try to thrive in. It is meant as food for thought, substance for discussion and material for reflection as people plan for 2019. It is a tapestry of trends, data, insights and issues from around the world, woven into something that hopefully yields a picture of what possibilities and opportunities may lie ahead to create an adaptive, thriving and positive world.

I see three major forces exerting themselves more significantly in 2019:

1. An angry world – continued division of people into poles, inequality, distrust and a sense of us vs. them that is fueling populist responses;
2. The world of technology continuing to provide us with positive life advances, but remaining the centre of intense debate about equality, privacy, monopolization, and contribution to the world order;
3. The shifting and evolution of our workforce to address issues of demography, artificial intelligence and automation.

The trajectories of these three trends converge to create the potential for a social disruption. This social disruption will bring business, government, and international relations to a standstill like no other disruption will. This is the real disruption. It is one we ignore at our peril.

You might notice that there are a variety of issues that are not included in this report, such as the environment, trade, and international relations. These will all remain important and critical topics for 2019 and beyond, but it is my belief that these issues cannot be dealt with unless we deal with the first order issues of humanity. People do not have the bandwidth to consider the plight of others, or the risk to our planet, unless they feel they are in a place to do so – and that requires addressing some major tensions currently around the world in terms of social stability, equity and trust.

Take the environment for example: while the EU has some of the most aggressive rules and proposals in the world to deal with climate change, once the rubber hit the road for gasoline prices in France, people revolted. Once it hit their pocketbooks and livelihoods, it ceased to be an issue they could rally behind. Much of the same is going on here at home in Canada with the carbon programs. How it affects our pocketbook (and our generally insignificant contribution to worldwide GHG reductions) is driving many Canadians to push back against these policies.

Therefore, I do not dismiss issues such as the environment or global affairs. However, in light of the state of humanity and populism around the world, they are secondary issues that can only be dealt with once people feel their first order issues – like survival and existence of their family – are addressed.

What is the path forward to avoid the social disruption that looms large? In the report, I provide some considerations for leaders and organizations in each of the three sections. However, ultimately it is about leadership courage and conviction. It is about strength and about thinking and acting in ways that are untraditional and perhaps unexpected. They represent strategies that may seem counter-intuitive in difficult times. Overall, I believe that our path forward is about three things:

1. Collaboration – no one can do it alone. There is too much opportunity and too many grand challenges in the world for one party, or only government or only business to tackle them. We will need strong collaboration. Collaborations that challenge and question the status quo and conventional ways of doing. We will need to think about building and solutions. Ones that unite and share rather than destroy.
2. Adaptation – nothing is staying the same. Adaptation of people, business, government, institutions and non-profits will be essential as the world continues to change, evolve, and disrupt. Adaptation requires that we don't sit around and wait for the solution to be given to us or for it to be mandated – we assess the situation and make changes and deliver solutions that are right for the moment. Adaptation will prove again to be one of humanity's most important traits. Uncertainty, and the resultant adaptation, creates immense opportunity.
3. Preservation – of the vitality and prosperity of our people that enable creation, contribution, and caring. Of the powers of platforms, networks and movements for good, not evil. Of our planet. Of those things that make us uniquely human, that enable connections, and the ability to collaborate and share and support rather than attack and separate.

An Angry World: Us vs. Them

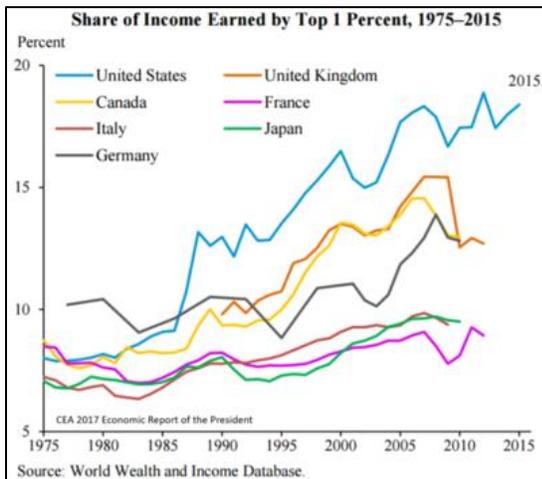
The world is angry. There are camps and divides all over the place. Political. Religious. Gender. Race. Nations. It seems like everyone is angry about something. We have a divided and fractured world. It is about us vs. themⁱⁱ. This divide is threatening so much: world trade, global institutions, financial stability, and much more. It creates tension that how the potential to escalate.

The 2008 financial crisis created massive ripple effects that continue to flow throughout the globe and in some form are responsible for everything from Brexit, to Trump to a polarized world. While business tries to navigate these fractured waters, it is critical that in order to repair trust, and begin to find us and them solutions, that leaders ensure that their organizations are focused on the long-term common good.

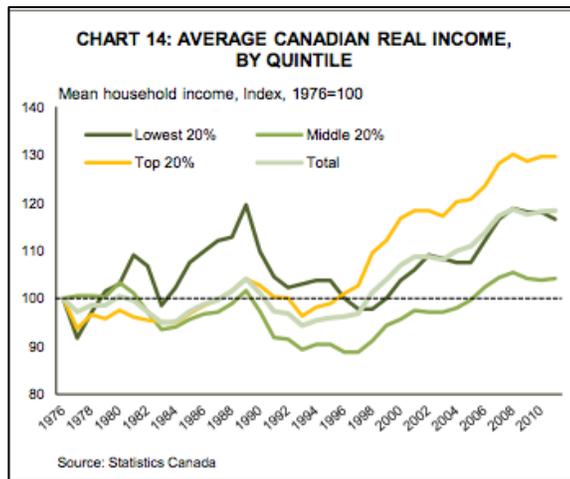
Inequality

Income and wealth inequality has vastly improved over the past number of decades across nations. Author Stephen Pinker outlines how the world has become better and more equal in *Enlightenment Now*, as international wealth and income inequality has been reduced, and the percentage of people living in poverty has now dropped to below 10% when it was nearly 70% 100 years ago. That is something to celebrate.

But what that data doesn't show is that income and wealth inequality *within* many nations has been rising for decades for many developed and developing nations. Thomas Piketty picked up on this in his famous tome *Capital in the Twenty-First Century*, highlighting the growing and problematic issue of income inequality within nations. Charts below show how Canadian incomes have performed since the mid-1970's – they demonstrate significant growth in the proportion and magnitude of income to the upper economic classes, while stagnation of those in the middle.



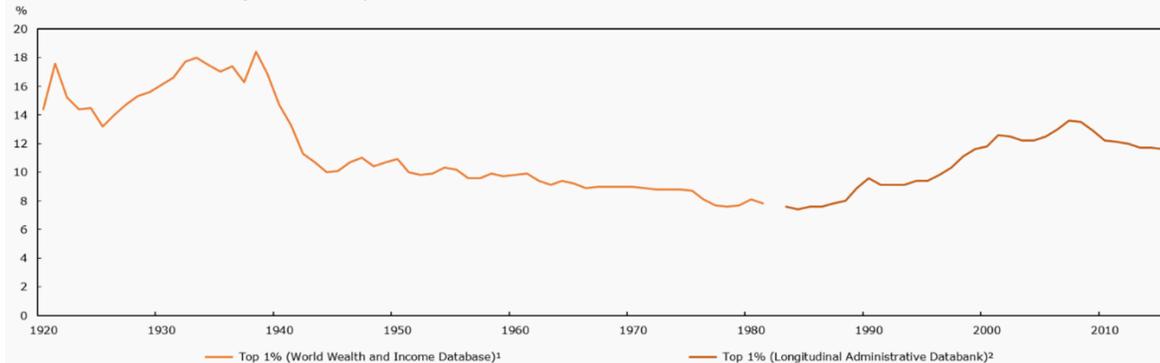
Source: World Wealth and Income Database



Source: Kevin Milligan: Tax Policy for a new Era

Recent reporting by Statistics Canada shows that between 1982 and 2014, the proportion of income earned by the bottom 50% of tax filers dropped 28.4% during that period while the proportion of income earned by the top 1% of earners grew by 52% over that same period.ⁱⁱⁱ

Chart 1
Market income shares of top 1% taxfilers, 1920 to 2014



1. Data from the World Wealth and Income Database are presented for the period from 1920 to 1981 only.
2. Data from Statistics Canada's Longitudinal Administrative Databank are presented for the period from 1982 to 2014 only.
Sources: The World Wealth and Income Database; Statistics Canada, CANSIM table 204-0001.

SOURCE: Statistics Canada

The issue of income inequality and reduced social standing and mobility is a key factor, if not the in my opinion, in contributing to an angry world; one in which people are feeling left behind, cast aside and angry with elites, politicians and the super-rich whom they feel have screwed them over. This anger has manifest in many forms from the Occupy movement, to Brexit, to changing E.U. political dynamics and to the election of Donald Trump.

We face a tense time. Rarely does a day go by when the wealth of individuals like Jeff Bezos and Mark Zuckerberg aren't in some headline. The wealthy are surprised and curious as to the anger and sentiment about the "war against wealth." Given the current levels of income inequality, particularly in the U.S., it is time to pause and think about altering the trajectory of continued inequality. Let me state right off the bat that I am a capitalist and believe in the power of business do go good in the world. I am not suggesting socialist or communist tactics like mass income redistribution, for those do not work. I firmly believe in the power and the benefits of business, capitalism and free enterprise. But it is clear our current course will not end well.

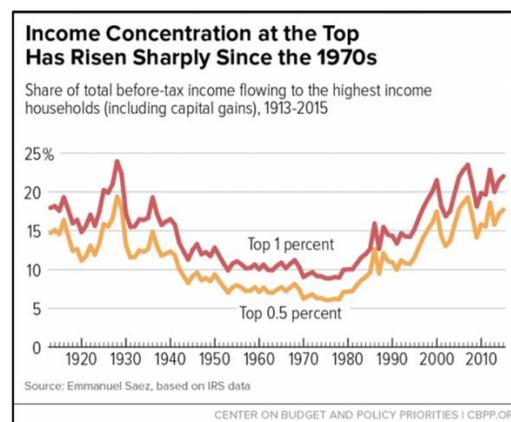
Many feel that it is purely a public policy issue, deeply rooted in equity and quality of education and job opportunity. That is definitely a key factor, which has resulted in decreased opportunities for some and decreased levels of social mobility, particularly in the U.S. From an economic perspective, we must consider how to address inequality in ways that result in greater income equality and encourages people to work hard, invest and create businesses and jobs. There is risk that if the current economic and political climates remain, the risks of greater polarization, revolt and revolution grow. History, by the way, supports that view.

The growth in income inequality is visible within developed nations such as the U.S., U.K., Canada and Germany. Why has this happened? It is a complex equation but I argue that, from an economic perspective and for the western developed economies, one could boil it down to generally to the pervasive short-term profit maximizing approach to business that describes our current economic and business model, and to the ever-increasing rise of technology and the limited circles that benefit from its expansion (this latter part will be explained in the technology section of this report).

The prevailing western developed economic ideology is one that is short-term and profit-maximizing. It took root in the 1970's and 1980's when economist Milton Friedman stated in a watershed 1970 *Wall Street Journal* article that "the one and only social responsibility of business is to use its resources and engage in activities designed to increase its profits." This mantra began the "winner takes all" approach to business. Executive compensation evolved to reinforce short-term behaviours, a view highly supported by empirical research. Boards and investors pushed management teams to achieve growth and profitability at all costs. Add increased global trade, offshoring, contracting out and the increased use of technology to replace workers and the growth of income inequality became well entrenched.

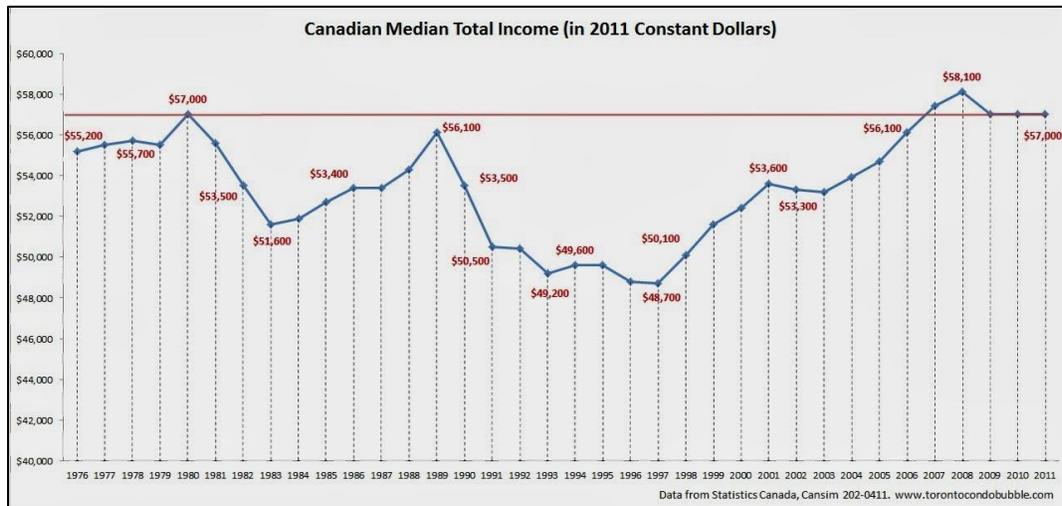
Research concludes that much of income inequality is a difference of wages paid between firms rather than within firms^{iv}. This suggests that the ability to land a job at a successful firm that can pay higher wages will be a key determinant in whether your income will rise or whether it will stagnate.

In the United States specifically, one can see from the chart below that the percentage of income captured by the top 1% began to grow shortly after that sentiment became the base of the economic system. The scale and magnitude of this take has not been seen since the early twentieth century when industrial barons like the Rockefellers and Carnegies amassed incredible fortunes while the vast majority didn't.



Source: Center on Budget and Policy Priorities

Canadian median total income has performed poorly since the 1980's as seen in the chart below. In constant dollars, median income was no better off in 2011 than in 1980.



Source: <https://inequalitygaps.org/first-takes/first-takesclass/the-decline-of-middle-income-earners/>

The 2008 financial crisis highlighted to flaws of our current business and economic system. Driven by continual pressure to grow and achieve profit, financial products were built that never should have been built. And when it began to unravel, the world's finances generally fell apart. I would argue that any business and economic system that builds itself to require massive government, fiscal and monetary support is a system that does not work.

The crisis saw millions of people lose savings, homes, jobs and livelihoods. Average people watched as banks took their homes away while the banks that created the situation were bailed out. In fact, within a very short period, the executives that enabled and supported the structure that created the financial crisis were bringing home massive bonus cheques. No one was prosecuted, yet thousands of people who were affected by the financial crisis never recovered, and never found work again – they have simply given up.

And they became very angry.

Populism and Homophily

Those angry people took to the streets in the Occupy movement of 2011. Their message –the 99% is fed up and they want to see change. The movement was so egalitarian and loose, however, that it ultimately failed. But the angry people didn't stop being angry.

These angry people, well, they got angrier. They had lost jobs, incomes, wealth, and homes. Many stayed poor. With their increasing poverty and anger, the social dynamic shifted; there

became more and more of “us” and they got increasingly angry at “them.” They were pissed off at those who they felt had screwed them over: the rich, politicians, the elite.

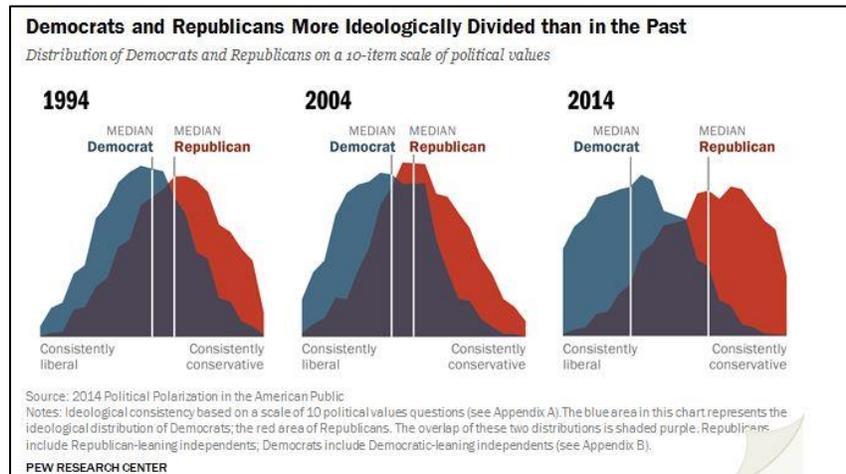
Seattle-based billionaire and entrepreneur Nick Hanauer believes that something has to be done, and soon. He took to TED and other platforms to share a simple message: “I see pitchforks. I have a message for my fellow filthy rich, for all of us who live in our gated bubble worlds: Wake up people. It won’t last. If we don’t do something to fix the glaring inequities in this economy, the pitchforks are going to come for us.”

You can’t get more clear than that.

Those angry, pissed off people who felt that they had been screwed over by the elites and by government are still angry. They are pissed and distrust anyone or anything that they feel has screwed them over to put them in their current circumstance – elites, politicians, companies, business, executives, immigrants; anyone who they feel has made them worse off. Their anger finally turned the tide politically. In the U.K., they have voted for separation. France, Sweden, the Netherlands, Italy – all experienced growth in political responses to this anger. In the U.S., they got behind an individual who hit the right note with them: you have been screwed over because of “them” and I am here to fix that, by helping you and “us.” Let’s make America great again.

The pissed off people took to their coffee shops, diners, dinner tables and community halls. Populist movements were born. Amplifying the wave of populism was a fundamental trait of humans – homophily. Homophily is the tendency of humans to have ties to people who are like them; in other words, birds of a feather flock together. While it can be positive and creates a sense of community, homophily also drives us to reinforce what we believe with others who believe the same, and to reject the views of others. We create camps and divides. We move to edges and fringes. We cement “us” into our space and paint a broad swath with our “them” brush.

The consequences of anger and homophily can be seen through the polarization of U.S. politics in the diagram below. In today’s political world, those seeking office don’t find much success in delivering to the middle ground – they go for the extremes. That is what played out in Brexit, the 2016 U.S. Presidential elections, and close calls in France, Netherlands, Italy and recently Sweden.



Source: Pew Research

Business also believes we are headed towards more polarization and a more fragmented world. The 2018 PwC CEO Survey found that executives feel we are moving to a more fractured world of belief systems, trading blocks, laws, and nationalism.



Source: PwC 2018 Global CEO Survey

Social media reinforces this polarization. We like, follow, share, or retweet those things that resonate with us. Our feeds bring only more of what we like and want. There is no room for new or different thinking. The echo chamber of social media only reinforces homophily and the fight against “them.” Social media has proven to be the ultimate accelerant for populism. And so when a savior comes along and tells “us” that he could fix things, people bought it.

They voted to leave because they believed immigrants were taking jobs and changing the fabric of the country. They elected Donald Trump. Anger and his willingness to take “them” on painted over a host of reasons why he wasn’t fit for office. It didn’t matter. He was going after “them.” And that was all people needed to hear.

Canada has a different set of values and a different culture. We aren't as polarized nor as angry as some of those in the U.S. Polarization to such extremes is unlikely in Canada. But we are seeing pushback and less intense versions of "us vs. them." It is happening in Ontario, has been prevalent in Saskatchewan for some time, and the tides may potentially turn again in Alberta come 2019. The anger isn't as intense but the sentiments south of the border are subtly making their way north.

Europe is also seeing its own waves of populism and clashes between "us" and "them." The *gilets jaune* movement in France was sparked in response to fuel surcharges intended to support reducing greenhouse gases but has become a larger movement symbolic of anger and discontent among the masses who feel the political powers are out of touch. We are in an increasingly angry world.

Can we get out of this situation – one where the world isn't viewed in terms of extremes, poles, or enemies? We can, but it will take time and will take the "us" camp feeling as if their chances and opportunities are improving. There will always be rich people and there will always be poor people. History has shown that forced income redistribution efforts do not work. But we must find ways through which those affected and marginalized feel that there is less of an enemy in "them." That will take change in opportunity, equity, prosperity, well-being and other outcomes. This outcomes are possible, but they will take much work, and likely more clashes and anger, to achieve.

So what will work this time? First, we must shift to a long-term common good economic ideology. Many recognize this is an issue and are working to try and move towards an economic ideology that is more long-term for the common good. In other words, an approach to business that is beneficial for more than just shareholders, but is also beneficial for employees, customers and communities. Movements like the B-Team, B-Corps, Focusing Capital on the Long Term and others are all examining ways to shape capital, standards, leadership and firms towards a set of business practices that put greater emphasis on equity and shared prosperity. It is critical that these succeed.

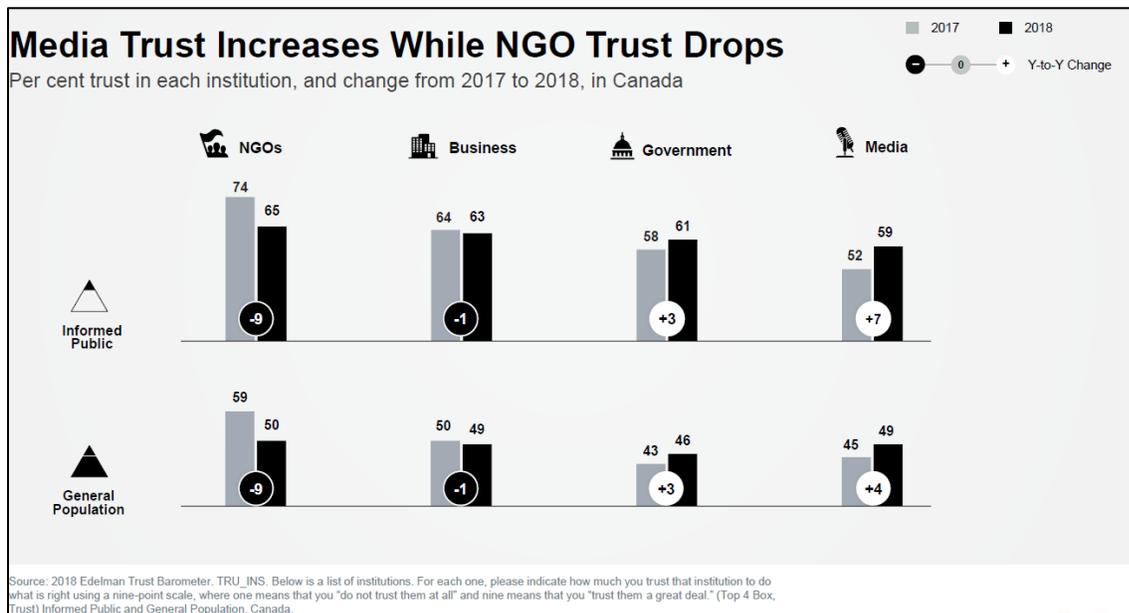
After that, other tactics are needed such as changing compensation programs, an increase in equity compensation across all levels of employees and tackling the social policy dimensions of income inequality such as improved education and employment opportunities for those who start at the bottom of the income pyramid. The rise of AI and automation may make this situation worse, and the superstar syndrome of Silicon Valley is also a headwind to improved income equality. A solution is needed, and there is no silver bullet but rather a range of solutions that will come from both government policy and corporate practice.

Distrust of Business

While I believe that everyone should be the master of their own destinies and we should all move forward in life with personal responsibility, it is hard to look at the income inequality figures and not be alarmed. Can you blame the millions of people around the world who are pissed off because they finished school, got a diploma or degree, did their part and find that they haven't made progress or that they have lost everything because some banker created a terrible financial product that cost them their savings or home? I can't blame them.

Business is one of the biggest "thems" out there in many of the "us" minds. The 2018 Edelman Trust Barometer^{vi} found that 68% of Canadians feel CEO's are purely driven by greed. That is a pretty big number. To them, all CEO's are Gordon Gecko. While many are likely thinking of CEO's of big companies, the vast majority of CEO's in Canada are from smaller companies, often ones that you interact with on a daily basis. They are your favourite coffee shop or restaurant. They are your neighbors and friends.

But that doesn't matter. A small handful of people and events paint every business leader or owner as "them." Enron. The 2008 financial crisis. The VW scandal. BP Horizon spill. HSBC money laundering. Harvey Weinstein. All of these major events, and the unethical leaders who perpetrated them, tarnish the image of business and leadership for everyone else. These large scale and massive breaches of trust and ethics become the perceived measure of business and leadership ethics. And while it is a few who perpetrate this image, perception becomes reality. As a result, people have come to distrust CEO's and business. In fact, in 2018, Canada became a net distruster of business among the general population. Now, only 49% of Canadians trust business, down from 50% in 2017, according to the 2018 Edelman Trust Barometer.



Source: Edelman 2018

This isn't to say that the current business as usual approach hasn't contributed to the lack of trust. It most certainly has. Outsized executive compensation, the short-termist profit at all costs approach, and the winner-takes-all realities of the technology sector have contributed to rising inequality and therefore decreased trust of business. All of this has resulted in a climate of distrust of business.

This erosion of trust is a contributor to increased populism. Business is "them." They have screwed "us" over. Policy and political decisions resulting from populist platforms are creating a highly uncertain policy and business climate, and resulting in less growth, less productivity, fewer jobs and an inability to get investments and projects launched. Therefore it is in the best interest of business to be part of the solution by working actively to rebuild trust.

Where does business start in rebuilding trust? There are a host of initiatives and movements working to reshape the economic paradigm to one that is for the long-term with an increased focus on the common good. Whether it is through addressing capital markets, policy, leadership, governance, authentic engagement on issues of importance to your culture, employees and customers, corporate purpose and culture or compensation, there are a host of potential routes towards making companies more focused on the long-term and on measures other than just profit. Consider it a re-imagined capitalism.

Canadians expect business to do something; the 2018 Edelman Trust Barometer found that 68% of Canadians think CEO's need to act on change rather than wait for government to impose or mandate it. Many also feel that companies and CEO's can't sit on the sidelines watching political and social issues play out in front of them and their customers. People, particularly millennials, now expect their companies to weigh in on issues that tie into the values of the company. Think Nike and Colin Kaepernick. Think Dick's Sporting Goods and MEC stopping sales of guns and products made by gun companies. Think Google's Sergei Brin protesting immigration bans at the San Francisco airport. Think businesses in North Carolina pushing back against sexually discriminatory legislation.

A re-imagined capitalism that focuses on the long-term common good would do more, and better, for people, communities and the environment. Whether it is the B-Corp movement, Richard Branson's B-Team, BlackRock and McKinsey's Focusing Capital on the Long-Term, Conscious Capitalism, capital markets more focused on the long-term, diversifying reporting standards and guidelines for investors and markets, or by looking abroad to different forms of ownership like the Nordic foundation companies Carlsberg Foundation or Novo Nordisk, there are a variety of means to get there.

The road to a long-term orientation that creates greater benefit for the common good as the predominant economic and business ideology is paved with obstacles but it can be done. Only then will trust be regained. Trust will return when people see action and results; ones that are

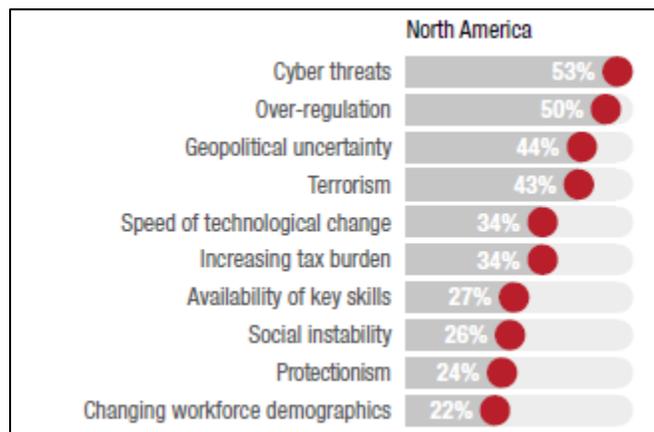
aligned to more people sharing in prosperity. Only then can the challenged political dynamic begin to move towards a saner centre.

Business Tries to Navigate

How does one do business in turbulent and unstable times such as these? Executives will tell you they can hedge against many things but they cannot hedge against uncertainty and turmoil. The current populist movements, and the resulting public policy, are significant challenges for business, and likely a key reason as to why they continue to focus on the short-term.

The business uncertainty that comes with Brexit is staggering. What will new trade agreements be like? How will trade and people flows work? What will make the most sense in terms of investment and headquarters locations? Will people, goods, services and finance move across borders as easily as they once did? Will anyone be willing to make large investments in the face of that kind of uncertainty?

The 2018 PwC Global CEO survey found that geopolitical uncertainty, social instability and protectionism were the numbers 3, 8 and 9 most concerning issues for top executives in North America.



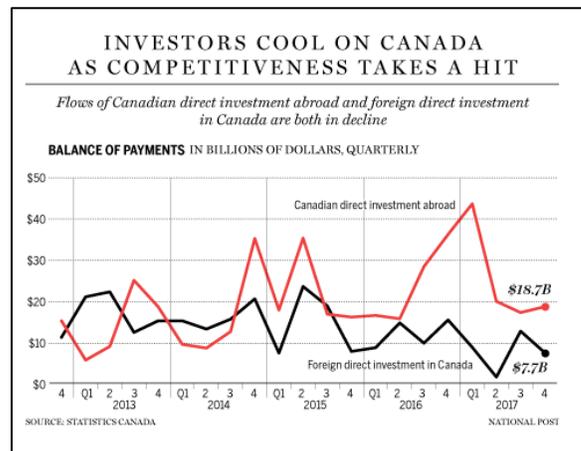
Source: PwC 2018 Global CEO Survey

Populism and polarized politics are not good for business. They often result in extremes and responses that are meant to continue placating and dividing rather than finding reasonable, rational solutions to the challenges of our day. Whether the issues are trade, the environment, energy, or taxation, populist driven policy responses are often not conducive to solving the problems that created populist movements in the first place. They continue to divide. They create uncertainty.

In the case of the U.S., implications and reactions to populism come up randomly and without warning based on whatever the President decides that morning. Tariffs on Chinese imports? Why not! Tearing up multi-national trade agreements? We were getting a bad deal anyway. Withdrawal from international climate accords? Sure, it's all fake! Reductions in corporate tax (at the expense of individuals and a growing deficit). President Trump has created economic policy that is resulting in trade wars, government shut-downs, growing current account deficits and concerned executives. While some of these are to the benefit of business, the majority are not positive. Business generally doesn't like uncertainty.

The polarization of politics is also a driver of Canada's inability to compete and advance projects of national importance. Canada is quickly becoming uncompetitive in the international arena because we feel we need to engage everybody on everything all of the time. Excessive regulatory processes are creating significant amounts of delay and cost. These costly and time-consuming processes are meant to placate polarized opinions and stakeholders yet are hindering sensible solutions that support shared economic prosperity, environmental protections and community vibrancy.

Canada is a paralyzed nation that is not working together. Projects are not coming to Canada. We have proven to the world we can't get stuff done. Money and projects are going elsewhere. More people are out of work, and many have left the workforce. We lack the ability of policy and government to keep up with the needs of business and innovation, and therefore while other nations and cities globally are driving to be "digital nations" or "smart cities," Canada tries in colourful socks to compete. But it isn't enough. The world is watching as we are paralyzed on infrastructure, industrial and innovation projects. No matter what the issue, Canada just can't get to a place of competitiveness and attractiveness.



Source: National Post 2018

Our inability to come together as a nation, and for policies, regulations and approaches to be put in place that find better, faster and easier solutions will mean that Canada will sit on the sidelines of global investment opportunities for some time. The only offsetting hope to this is

that there are a sufficient number of entrepreneurs and companies that tire of the even more fractured society in the U.S. that they bring their ideas, talents, investments and companies north.

The Last Word

We face a world of growing income inequality. Add to that the loss experienced in the 2008 financial crisis, and the colossal leadership and ethical failures of situations like Enron, VW, Wells Fargo and Harvey Weinstein and people feel like business, government, and elites are “them” and they have screwed “us” over. Trust is dropping. Walls are going up and battle lines are being drawn. It is an angry world of us vs. them.

Considerations for Leaders and Organizations

1. Consider an approach to business strategy that is about the long-term common good: becoming more purpose-driven; removing short-term reinforcing practices; embedding environmental, social and governance (ESG) factors into business DNA; engaging on social issues important to your organizational values; adjusting compensation programs to be more long-term oriented and enabling more employees to share in the success of the company, etc.
2. Engage in constructive public policy that benefits business and prosperity amidst populism and polarized public, creating “us and them” platforms.
3. Consider participating in prosperity related initiatives such as diversity and inclusion, skills and education programs, helping businesses and leaders understand the need to support broad based prosperity.
4. Work with all levels of government and stakeholders to find solutions to Canada’s competitiveness and unity impasse.

Questions for Directors

1. What is our purpose? Are we living it every day? How does our culture support our purpose? Are our decisions aligned to purpose?
2. Is my company oriented to the long-term? Are we performing/superstar?
3. In what ways is my company able to help make outcomes more equal? What is the integrity of our supply chain?

4. In what ways can my company build bridges to “them?”
5. What actions can my company take that will meaningfully rebuild trust? Are we ethical? Transparent? Engaged? Authentic?

Tech Takes Over. Or Does It..?

Technology is set to improve our lives; longevity, health, pleasure, wealth. It is set to transform industries, creating convergences across traditional sectors. It is set to create opportunities in developing economies. But it also has a dark side that runs from the spectrum of addiction, manipulation all the way to cyber-crime, and interference in sovereign matters. There is a light and a dark side to technology that we must be aware of and find ways to amplify the light and contain the dark.

The Awesomeness of Technology

Technology is advancing at a rate that will make life awesome –letting us lead easier, more balanced, healthier and longer lives full of more enjoyment, leisure and pleasure. Who wouldn't want that?

Want a new pair of pants or fridge that will tell you when your milk is low? One click and you will have it the next day, or your 3-D printer will make it for you in a couple of hours. Don't want to waste the energy to lift your hand to change the channel? No problem, a quick voice command will do that, and close the blinds, vacuum the carpet and fold the clothes. Found out that you have cancer? Don't despair, tomorrow you will have nanobots injected into your bloodstream to track down the cancerous cells and destroy them.

Technology is pervasive in every facet of our lives and set to expand even more so. Internet of Things (IoT), digital and mobile devices are dramatically shifting education, as initiatives like the Khan Academy represent the tip of the iceberg in how digital can be used to expand and explore new horizons for education. New approaches to energy will make renewables cheap and easy to access and store. The use of bio and nanotechnology will improve the production of agriculture and make food grow more rapidly, easily and in conditions that are not presently viable. Imagine vertical gardens and "fake meat." Better and easier access to energy and food will vastly improve the ability of developing countries in difficult to access areas to have a higher quality of life, better health and ultimately participate at a greater level in the global economy.

In the coming years we will see the rise of more IoT devices, more 3-D printing, more autonomous mobility, automation, drones, and robotics. Our daily lives will be changed with things like blockchain and big data as everything from our banking, shopping, and travel will happen more easily and with greater trust. Technology is advancing so fast that soon Uber and Airbnb may be irrelevant as the individual autonomous vehicles and wired homes communicate with each other to seamlessly transact a ride or stay using blockchain as the means of contractual confidence and financial exchange. You won't need an app or platform. The disruptor gets disrupted.

This and much, much more is either happening or on the verge. Even further into the Technosphere efforts are underway to have humans live to 150 (not sure I am keen on that one, nor is it likely society or individuals could afford to live that long), creating genetically engineered perfect humans, enabling space travel and colonization, creating augmented reality, artificial intelligence and the eventual singularity of human and machine. While the future is all tech all the time, it's really about convergence – the convergence of technology and health, or technology and agriculture, biology, aviation, materials, manufacturing, mobility etc.

Places like Singularity University and techno-optimists like Peter Diamandis and Ray Kurzweil have done loads of work on the potential for tech that one can look into. There's way more happening than can be described in this report.

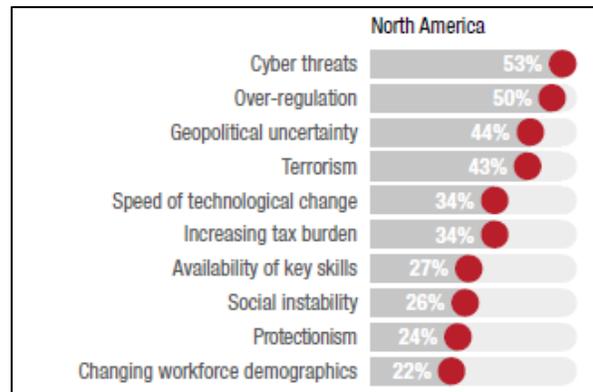
The opportunities to live better, longer, healthier lives create a host of business opportunities for those that are able to translate the technology into marketable products and services. There are also immense opportunities on a B2B basis that will grow as the advancements of technology grow and scale. Businesses that can create a means of solving that problem through a scalable and impactful technology solution will be the winners.

The advancements of technology are also creating great opportunities for the developing world. They are able to reshape their trajectory to one that is increasingly independent and chart their own future through the increased use and adoption of mobile and digital technologies. Consider M-Pesa the Kenyan mobile money transfer app that has grown to be a major means of moving funds. Or the Aadhaar biometric initiative in India creating mandatory digital records of all Indian citizens. The ability for someone now in the developing world to have a mobile phone and run a business, save money and build wealth has been transformed over the past five years. All this through the simple adoption and development off a mobile phone platform. As technology advances, so do the opportunities for developing nations.

The Realities of Technology

To the average person, some of this change seems exciting, crazy and scary all at the same time. It is easy to feel overwhelmed. I know I feel it. I look around and think – how are people coming up with stuff like this? The new and emerging technologies are incredible. It seems like everyone but me is creating the next app or platform. The pressure on businesses and organizations to understand and adapt to the change is great. Assuming you have the right tech savvy, the opportunities to be the one to develop ground breaking technologies and platforms is greater today than ever before – but the competition is intense as incubators and accelerators become the economic development tools *du jour*. Leaders stay up at night thinking of how to navigate through all this change and disruption, and how not to become a victim of someone plotting to either to disrupt them or hack them.

It is easy to be overwhelmed with changing technology and feel like you are the only one who doesn't get it or is not capitalizing on it. You aren't alone. The truth of the matter is that most people, you and I included, and most existing leaders, are feeling overwhelmed by the pace and magnitude of change. Change and disruption is keeping CEO's awake at night. The 2018 PwC Global CEO Survey found that cyber threats and keeping up with the pace of technology change were the numbers 1 and 5 biggest worries for North American CEO's in 2018.



Source: PwC Global CEO Survey 2018

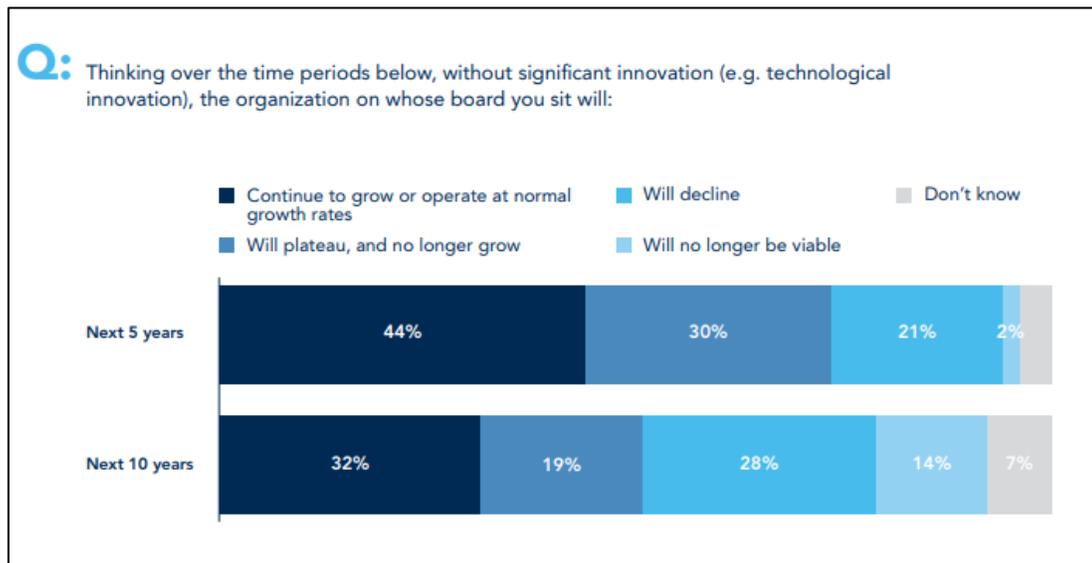
CEO's are having trouble keeping up with how much change and disruption there is and where it is coming from. It is impossible to do so. A new disruptor only needs to focus on their small piece of disruption. An existing company has to worry about all that it is already doing, AND the potential for disruption, AND the opportunities for them to innovate themselves.

For those feeling excited to have their existing company create the next disruption, I have news for you: it won't come from you. The majority of the new ideas, technologies and disruptions are being created by a handful of people who have the ability to work in labs, accelerators or in garages until they run out of money. The innovation is happening on the fringes from new entrants, rarely from the existing companies. That's because they have no constraints, no rules, no status quo, no existing customers or revenue lines, no boundaries. Existing companies do. Think about how easy it is to build a brand-new road in the middle of nowhere versus trying to build a new road in the middle of an existing city. Two totally different experiences and levels of ease and opportunity. Look at Uber and Airbnb. They created disruptions but didn't exist until they created that disruption. A hotel chain didn't create Airbnb. A taxi company didn't create Uber.

Leaders have enough trouble getting through this quarter or this year, let alone figuring out what the next 5 years looks like. Leaders are finding themselves operating in an increasingly VUCA world – a military term which stands for volatile, uncertain, complex and ambiguous. In some instances, technological change and disruption paralyzes business leaders. They ignore it. For others, it is a challenge to be risen to. It is all about mindset. The one response that should not be considered is avoiding and ignoring it. Leaders can't be expected to be experts but they

should be able to learn, and convene other experts, in order to understand how technology change might affect their business – either positively or negatively. They will need to have discussions among leaders and boards as to how to adapt, respond and plan. Leaders, tools and tactics that can help to make the world a little less VUCA are in high demand.

It is also clear that many boards of directors are not sufficiently engaged or focused on the domain of technology and its impact on the firm. The Institute of Corporate Directors (ICD) Fall 2017 survey^{vii} found that 82% of respondents indicated that technology and disruption are important issues facing their companies, however nearly 50% of Canadian corporate directors feel that their companies will continue to grow or operate at normal growth rates without significant innovation. This is a worrisome result, for it is largely believed that innovation will be a key driver of growth into the future. It begs the question as to whether Canadian companies are being directed sufficiently at the governance level to consider how to activate technology and innovation as means of growth or value creation.



Source: Institute of Corporate Directors Fall 2017 Survey

Additionally, in the ICD Fall 2018 survey^{viii}, a full 57% of directors indicated that their company has no strategy for applying technology in their organization, with 16% indicating that they have not even discussed this topic. With technology, innovation, automation and artificial intelligence now as key elements of business disruption and ultimately survival, one could easily be concerned for the longevity and future competitiveness of Canadian corporations with results like these.



Source: Institute of Corporate Directors Fall 2018 Survey

A study by Focusing Capital on the Long-Term (FCLT Global) and McKinsey and Co. entitled *Rising to the Challenge of Short-Termism*^{ix} found that the two largest sources of pressure executives felt to perform in the short-term rather than focus on the long-term were greater competition and more economic uncertainty. Therefore, many companies are continually stuck in a spiral of short-termism and are not able to unlock the value that can be achieved by thinking and acting for the long-term. They must work diligently at finding strategies to manage change and uncertainty in the short-term, while remaining oriented to the long-term as a firm.

While many business leaders and corporate board members are behind in their advanced strategy, government is in the same boat. Technology is creating immense opportunities to improve lives, better cities and economies, health and wellness and yet our governments are not figuring out how to nimble and agile, creating public policy that will see us maximize the benefits of technology.

The innovation agenda and the opportunities to see technology improve humanity and the planet seem wildly missing from government agendas and Hansards. Public policy, regulatory and approvals processes need to be vastly modernized to keep up with the pace of technology and innovation. Government is at risk of becoming more and more irrelevant as it fails to address the pace of technology, business and its ability to deal with easier issues like ride-sharing in communities. Imagine seeking approvals for cancer-eradicating nanobots, artificial proteins, vertical gardens in urban settings, 3-D printed infrastructure, or flying vehicles. My city doesn't even have a reloadable card for public transit. How will we ever deal with the public policy implications of really complex technological issues?

All of this points to adaptability. Adaptability will be a key skill and capability now and in the future. Organizations and individuals need to build their adaptability quotient as the new capability to thrive in the future. Governments and public policy will need to adapt to emerging and dynamic new technologies – the pace of change and innovation is not such that we can continue to study everything to death before we consider creating pilot programs that will result in sound policy. Things are not staying the same and so governmental, organizational and individual adaptability to new and evolving opportunities will determine the winners and losers of the future.

Finally, despite all their positive potential, the consequences of technology raise deep, philosophical, even existential questions. What is privacy? Do robots or machines have rights? What is safe? Who regulates the digital world? Who owns data about you? What is the product? Who should monitor data and access to data? What energy needs are required to power an increasingly digital existence? Who is backing up the back-ups? These, and many other even deeper ethical questions emerge as we turn more of our lives over to the Technosphere.

The Downsides of Technology

Technology and disruption have a dark side as well. While many original concepts of the internet and its platforms were to create a connected global community that would do good things together and share cat videos, the reality has become something quite different.

According to some estimates, adults are online approximately 3-4 hours a day, and teenagers online for over 5 hours a day. This singular focus is eroding and decreasing human interactions which brings with it a host of social, health and economic costs. Many of these devices and apps are engineered to create addictive behaviours, making withdrawal from using the devices extremely difficult – anyone who has a teenager into Fortnite or Snapchat will understand what I am talking about. The pervasive use of digital devices and social media are leading to a host of social and mental health issues, particularly among adolescents. Increased depression and cyber bullying are but two examples. A survey found that despite the tens of millions of users, over 30% of Americans and Canadians feel that Facebook is having a negative impact on society^x.

As we enjoy the ability to have our phones track our locations, monitor our steps, give directions or suggest certain items to buy, we must recognize the amount of data that these platforms are collecting on us. Platforms like Google, amazon, Facebook and others keep immense amounts of data only to turn around and use data on you, that you gave freely and without license or compensation, to sell their ability to provide targeted advertising. The question remains, who should own data on you? The E.U. has implemented the General Data Protection Regulation which lays out how personal information is tracked and protected. Other countries are following suit. As much as we enjoy these “free” platforms the reality is that if the product is free then you are in fact the product.

Darker uses of technology include the use of social platforms for nefarious purposes. The alleged Russian interference in the 2016 U.S. Presidential elections is a prime example. Or the use of Facebook to coordinate and incite acts of genocide in Myanmar. The echo chamber of social media is the ultimate accelerant for populism and has been seen to spur and accelerate hate crimes or targeting individuals for character assassination. Consider the use of social media in the recruitment of new jihadists to ISIS. Far from cute cat videos, sermons of hate and

violence are prevalent in the social networks. Some platforms have shut them down, while others, including Facebook, let them remain operational, citing that these individuals aren't "intentionally getting it wrong." Sure Mark.

Even darker uses of technology include cyber-crimes and warfare, which, when speaking to any cyber security expert, are simply a matter of when, not if. Attempts and successful hacks to major institutions like government and banks have increased significantly – nearly three times what they were ten years ago. Companies can expect to be hacked at some point, and so their best bet is to not only have a robust security platform, but also to think about what their immediate post-breach strategy and response will be. Protection is believed to lag attack technology advancements by almost a full year, so it is only a matter of time. As we put more and more of our lives, money and information into the system, we must consider the potential ramifications for partial or complete data and identity thefts. Canadian corporate directors agree, stating cyber risk as the top external risk facing business, according to the Institute of Corporate Directors Spring 2018 survey^{xi}.



Source: Institute of Corporate Directors Spring 2018 Survey

The Concentration of the Platforms

Our world and lives are increasingly run by a small handful of platforms. Google. Amazon. Apple. Facebook. Twitter. They represent how we buy, learn, share, inform, educate, engage, and find. While they have created many positives and helped make our lives better and more connected in some ways, the fact that these four platforms run so much of our lives has raised the concern of many, suggesting that they are too much of a monopoly. Google is alleged to quash search results that don't benefit their platforms. Amazon is killing local businesses. Apple locks their systems down tightly even so far as to evade the FBI. Facebook creates a vast echo chamber of fake news. Twitter enables the anonymous spreading of hate and character assassination.

These platforms are large and they are growing. To many, they are too big and monopolistic. While their scale creates potential and opportunity, their size and lack of regulation has

brought about a wide variety of concerns lately, with multiple platform companies being hauled in front of U.S. Congress and Senate committees to testify on everything from meddling in U.S. elections, privacy, security, access to information and fake news.

The nations of Canada, U.K., Australia, New Zealand and the U.S. came together to create the Five Eyes intelligence agreement, which outlines a series of principles on privacy and encryption that they will be looking to implement and hold platforms to. This will enable them to outline when they can gain access to private data when issues national security or public safety are at play. Recall the issue of Apple refusing to unlock an iPhone of a terrorist citing privacy issues. It would appear that the days of hiding behind that defense are numbered.

Whether it is the use of Facebook to spread fake information and stories in the run up to the 2016 elections, or their part in the Cambridge Analytica scandal, it is clear that the platform has simply gotten away on them and they are either incapable or unwilling to get it back under control. Google has been cited as guilty of monopolistic practices and holds the record for the largest fine ever levelled by the E.U. The future of these platforms is far from certain.

President Trump has mused about increasing regulation and/or “trust busting” these platforms much like was done with the railroad, oil, and steel monopolies in the late 19th and early 20th centuries.

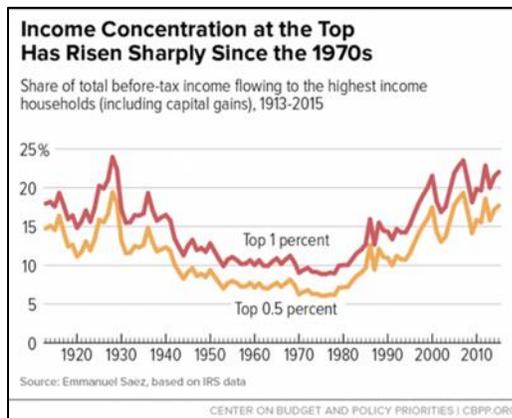
What does the future hold? Are the platforms too big? Are we too addicted to them? Will we find that they just don’t make life better, and we will want to revert back to simpler times? It is unclear. My prediction: I don’t see Amazon or Apple being all that affected, but Google will need to reconsider how it creates a more level playing field in the future for the rest of the non-Google world. But my biggest prediction is that of Facebook; I predict that by 2023, Facebook will not exist in its current form. It has lost control of itself, and its leaders are clueless as to what to do, nor do they seem willing to try all that hard. You should start to look for a new place to share your cat photos with your friends.

Returns of Innovation Going to Too Few

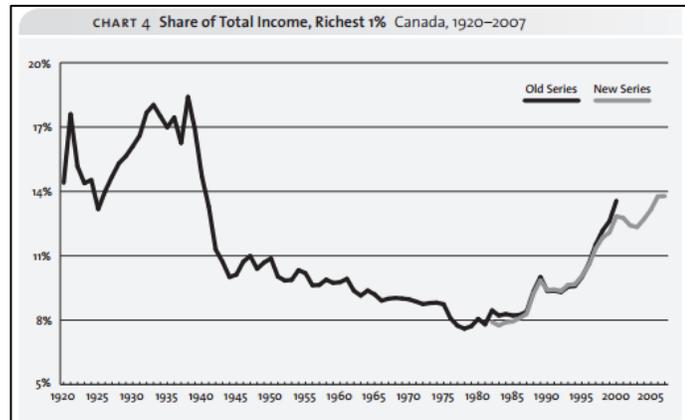
Most of us read with jaws dropped and a tinge (ok a big tinge) of envy as the results of the world’s richest people are released every year. Jeff Bezos, founder and CEO of Amazon now tops a net worth of \$100 billion. While there aren’t many in that stratosphere, the growing pool of the world’s wealthiest people are centred around tech. Bezos, Gates, Page, Brin, Zuckerberg, Ellison. Most of the top 10 are tech.

Current levels of income distribution and inequality are a harkening back to the times of industrial barons – the Rockefellers and Carnegies – where immense wealth was amassed by so few people who controlled large segments (if not all) of an industry. Not since the early

twentieth century have so few earned so much. Today feels like a similar time. Bezos and Zuckerberg are the new Rockefeller and Carnegie.



Source: Center on Budget and Policy Priorities



Source: <https://inequalitygaps.files.wordpress.com/2014/03/top-1-income.png>

While the grander subject of income inequality was covered earlier in this report, the role that technology plays is the focus right here. There is an increasing view among the public, journalists, economists, and even those in the finance world that the gains, deals, and financings of technology companies and their activities, and the seemingly “winner takes all” outcomes of Silicon Valley activities, are one of the largest growing contributors to income inequality today. The ultimate issue is that the valuations of technology companies have grown excessive and that the financial returns from the activities or sales of these firms are going to too few, leaving the bulk of society behind.

MIT Sloan School professor of management Erik Brynjolfsson told the *MIT Technology Review* recently “My reading of the data is that technology is the main driver of the recent increases in inequality. It’s the biggest factor.”^{xii} His thesis: that while technology is advancing economic growth, its gains are going to too few people – the superstar syndrome. This posits that while there are many coders and minions working away in the offices of Amazon, Google, Facebook and Twitter (who make decent wages), it is the founders and the initial investors who are making off like kings – and will be current and future winners in the battle for wealth and income. Their talent, and luck, is being amplified due to the gains and excessive valuations of technology companies, and their ability to create a unique innovation and build a sound business model. So unless you are one of the few who either create a unicorn, or are an early stage investor in a unicorn, the returns on innovation really won’t flow to you.

How bad has the situation become? Consider that the average home value in Silicon Valley within a 20-minute drive of the HQ’s for Apple, Facebook and Google now tops \$1.2 million U.S.D. Also consider that 30% of the Silicon Valley population makes minimum wage. No wonder the Valley is collapsing on itself.

The impact that the technology companies have on overall economic activity and wealth concentration cannot be understated. As of mid-point 2018, 99% of the S&P 500 gains (4.5% YTD) had been generated by six companies – Apple, Amazon, Facebook, Alphabet, Microsoft, and Netflix. 99%. Basically everything else is standing still or in decline.

The Last Word

What does this hold for the future? Technology is resulting in a world of bubbles and superstars. Bubbles that enable us to live in our own worlds, creating social isolation, but perpetuating echo chambers that support and enable populist movements. Superstars that are benefiting from the “winner take all” syndrome that has emerged in Silicon Valley. Many consider that the superstar syndrome and the wealth that it has already created will only accelerate and grow – leaving a greater distance between those who have and will benefit from the gains in technology and those that have not, exacerbating inequality. As fewer people and companies benefit from the gains in technology, keeping up competitively and individually will increase in difficulty. Will the future wealthy only be those that know how to create, or invest in, a unicorn? What does this mean for the future of education, training and jobs? Computer science will clearly continue to be in high demand and the place to be. Will all other disciplines suffer or struggle? Will the computer science degree become the new Harvard MBA?

Considerations for Leaders and Organizations

1. Ensure that you have an understanding of the key issues, opportunities and risks associated with technology. Be a convener of people with expertise in a broad array of technologies. Engage with employees and customers as to implications. Be prepared to adapt and respond to opportunities that arise.
2. Develop a technology strategy for your organization based on the convening outlined above. Ensure that robust conversations are happening at the board and executive levels with respect to technology as opportunity, enabler, risk and platform.
3. Improve the adaptability quotient of your organization, team and governance to respond to technology opportunities and risks – be nimble and flexible. This includes increasing innovative capacity within your organization.
4. Be prepared for changes to technology policy that will affect the platforms and capabilities of major entities. The power of major platforms (e.g., Google, Facebook etc.) may be reduced in the future and consider what that means for your business strategy.
5. Use technology and platforms for good.

6. Curate relationships of convergence between your business, industry – agriculture, manufacturing, natural resources, energy, etc. – and technology to facilitate business opportunities. This should also involve the research and education sector.

Questions for Directors

1. Who around our board table truly understands technology, disruption and innovation?
Are we competent and savvy in our oversight and guidance?
2. Are we building strategies to address innovation, technology, change and opportunity?
Are we challenging the assumption of growth without innovation?
3. Are we ensuring that there are broad based returns and benefits from innovation and the technological creation of value?
4. Are we protecting ourselves from the downsides and risks of technology? Are we prepared for threats? Are we too reliant on a platform?
5. Are we avoiding bubbles?

Workforce of the Future: Could vs. Should

Artificial Intelligence (AI) and automation are set to make many aspects of our lives better, and to enhance productivity. Demographics are creating the need for automated solutions in many parts of the world. But the implications of AI and automation are varied throughout the world, meaning that business and government need to have very direct discussion about the future of the workforce and what AI and automation will do for many millions of people. The availability of skills and retraining, in addition to social safety nets, will be vital to ensuring peace and prosperity.

AI and Automation

For nearly a century, humans have been worried about their replacement by robots. Headlines in newspapers in the late 1800's and early 1900's suggested that the Industrial Revolution would bring about an employment apocalypse. Washing machines were set to eliminate an entire industry. The automobile was going to eliminate all carriage drivers. Computers that took up an entire room would make whole departments redundant.

This isn't new.

Artificial Intelligence (AI) – generally the ability for machines to take on intelligence to enable them to make decisions under certain conditions, and even to learn and adapt as they face the outcomes of their decisions – is being developed to improve upon or replace the performance of humans. IBM's Watson is the most famous of all AI initiatives for having beaten humans at a game of Jeopardy. The benefit of AI is that computers can consume and store vastly greater amounts of information and data than humans and then run lightning speed calculations to determine the best answer or solution, often with results that are better than those from human experts such as trained and experienced doctors. The scary part of AI? Well...the Matrix.

Automation is the replacement of humans through machines and robotics. AI and automation do overlap but not necessarily. Automation could be as simple as what is already done in many manufacturing facilities around the world – the use of a robot to do a human's task or function. It doesn't think. It just does a repetitive task. Like putting on a bolt or sealing a package.

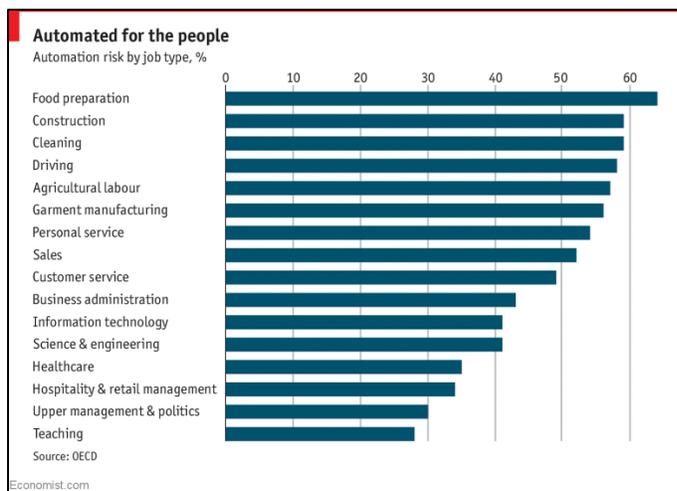
AI and automation have the potential to reshape business and the world of work. They already have. They hold tremendous promise in areas where the availability of labour is low, where demographics will reduce the workforce in a short period of time, or for those occupations that people simply don't want to work – general labour, cleaning and repetitive tasks. Google's Chief Economist Hal Varian told an Oxford University business conference^{xiii} that the demographic effect of the aging workforce in developed nations will be 50% larger than the automation

effect—the loss of jobs due to automation. Therefore, for many places around the world, we are in need of automation to keep our productivity at acceptable levels.

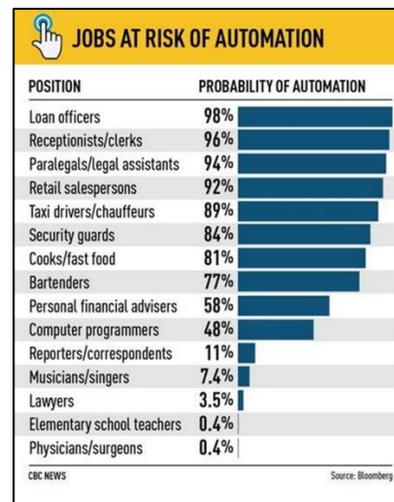
Automation is also a potential benefit in that it replaces humans in rote and repetitive tasks with much cheaper and efficient machines, thereby making products more affordable to more people.

Will robots come for our jobs? It is important here to distinguish between tasks and jobs. It is unlikely that robots – either AI or automation – will be able to replace entire jobs in the near future. They are clearly able to replace tasks, particularly those that are rote and repetitive, and follow a specific sequence of steps. But entire jobs – that is likely farther off.

Numerous studies have been done about the jobs and roles that will likely be impacted by automation. The charts below show that, not unexpectedly, those tasks that are heavily repetitive and follow a set of rules or procedures such as food prep, sales and cleaning will be heavily impacted. What might be less expected is that some of these roles are considered white collar. There is risk to loan officers, paralegals, accountants, business administration and other repetitive task office jobs. Far from just affecting the factory floor, AI and automation have the potential to affect the office towers. In Canada, some of these high-risk occupations such as those above, and retail and food preparation represent upwards of 25% of the employed workforce in aggregate, or about 5 million Canadians.



Source: The Economist



Source: CBC News

Is it different this time? Will robots really replace your work? While the changes may not be immediate, there is likelihood that many roles will see an increasing integration of AI and automation. And for some, the entire role will be automated and disappear. Consider also the words of Wall Street icon Byron Wein: “After the introduction of the automobile to replace the horse and carriage, not many of the horses found new work.”

What makes the headlines different this time is that we have hit a point where we can actually get computers to think, reason and respond. Historically, machines simply replaced the physical element of human labour. There was no thinking. But now, they are thinking. We were protected for decades because we didn't have machines that could think and reason as effectively as clearly as humans. They are starting to now. And so, yes, this feels different.

Implications of AI and Automation

Now that you are right and scared that robots are coming for your job, consider that this has been happening for some time.

One of the greatest drivers of populist movements in both the U.S. and U.K., and a critique of globalization and free trade, has been the notion that all of the domestic jobs have gone offshore or have been taken by immigrants. This is simply not true. Studies have shown that nearly 90% of the jobs lost in U.S. manufacturing over the past decade have been a result of automation^{xiv}. The robots have been quietly replacing us already.

The impact of AI and automation is expected to be quite different in developed and developing economies – this is for two reasons: first is the nature of the jobs and employment market itself in those economies; and the second is the difference in the social safety nets and job retraining opportunities that exist for those who find themselves without work.

In terms of the job markets, developed economies are generally considered to be more advanced job markets, with a higher proportion of jobs in the knowledge economy which requires more advanced skills and education and are less labour intensive. Developing economies – locations that have grown over the past few decades as locations of manufacturing and offshoring of repetitive tasks – have a smaller proportion of jobs in the knowledge economy, and more in the manufacturing sector. The growth of these jobs in places like China, India, Taiwan and Bangladesh have meant increased income and prosperity for some, but with the looming AI and automation wave, this prosperity looks to be at risk.

Various studies have been undertaken to assess the impact of AI and automation on different job markets. Canada, as a more developed job market, is expected to see approximately 40% of jobs at risk or heavily impacted by AI and automation according to a study by the Brookfield Institute for Innovation and Entrepreneurship^{xv}. Developing economy job markets may see upwards of 67% - 75% of jobs at risk due to AI and automation according to a 2016 UN Trade and Commerce Committee report^{xvi}. Their less sophisticated job market puts more jobs at risk.

The magnitude of impact would not be as much of an issue if all nations had robust social safety nets such as those in places like Canada or Sweden. But many nations don't. Therefore, as pointed out by Ian Bremmer in *Us vs. Them*, many developing nations are at risk not only of job

loss, but also of significant poverty and social unrest because they don't have the safety net to support unemployed people. Whether it is countries in Africa, Southeast Asia or the Middle East, nations like Egypt, Nigeria, Indonesia and even India, don't have robust social safety nets. Lose your job – tough luck. Nothing there to support you.

There is also the role of the private sector to consider. Not all retraining should fall to government and social supports. As the issue of AI and automation continues to expand, there are increasing calls for companies to provide skills and retraining programs for those that they layoff in the name of advancement and progress. A multitude of voices are suggesting that there is an obligation on the private sector, for the betterment of society and to minimize the potential for further growth in inequality and social unrest, to provide retraining and enable people to find meaningful and creative work. The right balance of roles and responsibilities is a topic in need of discussion among government and industry.

Nothing drives this point home better than the result of surveys completed in the U.S. and Sweden. An E.U. Eurobarometer survey^{xvii} found that 80% of Swedes are feeling positively about automation because they feel that the reskilling and training that needs to take place will take place and that those affected will be supported by the system, and that few, if any, people will be long-term negatively impacted by automation. Contrast this with a similar survey done by Pew^{xviii} in the U.S. which found that 72% of Americans were worried about automation. The U.S. social safety net is much weaker, and the U.S. corporate base has a poor record of truly reskilling people for new work.

As a result, the potential negative impact of AI and automation is significant in developing economies, not just because of the number of jobs that could be lost, but because once they are lost, those people will be totally on their own. This will result in high unemployment and increased poverty, both of which have the potential to turn into serious social issues and unrest. What better way to start a decline in economic prosperity and social stability than to have a bunch of people unemployed and poor. There are nations all around the world where this already plays out. We don't need more.

Will AI and automation have drastic negative consequences or will it turn out to be another Y2K? Or will it happen quickly or slowly? No one really knows. We must acknowledge that as we embark on further use of AI and automation that there comes the potential for significant job loss and therefore the potential for economic uncertainty and struggle for many people around the world. It forces a big question: knowing what is likely to occur, just because we can, does it mean we should? Some nations which rely more heavily on labour intensive manufacturing may choose not to embark on as much of a path of automation simply to preserve the public well-being and social stability. Others may embrace it with either the plan to reskill and retrain, or to deal with large amounts of unemployed. If we do embark on increased AI and automation, what kinds of retraining and safety nets need to be in place to not affect prosperity and social stability? How can we best set people up for prosperity in the future? What needs to be in

place? Regardless of the path, the choice of could vs. should needs to be informed by a plan of how to deal with the future of skills, education and work.

The Future of Skills Training, Education and Work

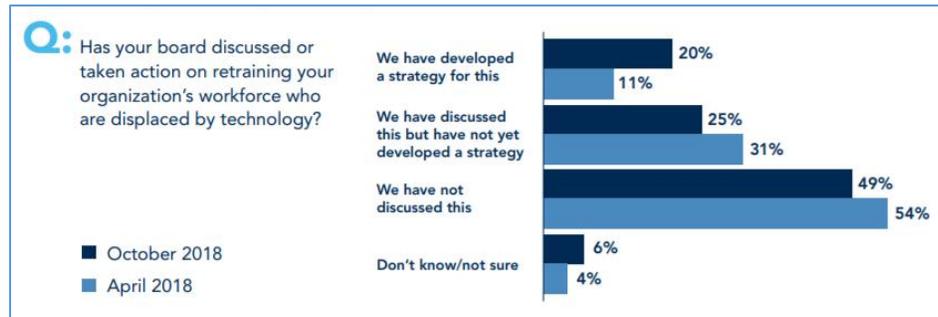
Another new reality is the increasing “gig-ification” of work; the increased use of freelancers and independent contractors. Whether it is for a graphic design, driving a car, or designing hyperloop, all of these jobs are now increasingly becoming gig-ified. Uber, Lyft, Task Rabbit, Zeel, 99 Designs; all platforms to enable people to be independent and take as much or as little work as they want. Price themselves accordingly and see what happens. Salim Ismail speaks about how firms of the future – what he calls Exponential Organizations – will heavily rely on gig and contract workers to keep the company structure small and nimble. That is exactly what Hyperloop Transportation Technologies does; they have a small core team, with the majority of engineers and designers all freelancing as contractors on the main project.

While this gig work creates a whole new set of opportunities for people to do meaningful, creative and diverse work, it comes with risk. There is no platform for benefits in this system and no way to ensure people are being paid fairly.

In the face of a potentially new world of work, there are a number of things to consider and develop plans for:

1. How do we create education systems that enable people to be adaptive, flexible and responsive?
2. How does our education system need to respond to enable more people to be in positions to create value and innovation?
3. How do we foster a more adaptive workforce?
4. How do we plan for education and training when the jobs 10 years out do not exist today?
5. What programs and initiatives get put in place to help reskill and retrain people affected by automation and AI?
6. Do social safety nets change with the looming AI and automation wave to serve those affected in new and different ways?
7. If creativity and innovation are the new capabilities needed to not be automated or machined out of a job, what do we foster, nurture and train people for in the future? How do we train for this?
8. For the gig economy, what kinds of supports and mechanisms need to be in place to make sure that people have the coverage and benefits that they need to be as productive and prosperous as possible?
9. What are the roles of government, academia and industry in this new world of skills, training and work?

These questions are not small nor easily answered. But they need to be addressed. It doesn't seem like they are, at least in Canada. In their spring 2018 survey, the Institute of Corporate Directors found that 80% of Canadian directors have either no strategy or have not even discussed the issue of workers displaced by technology in the firms that they govern.



Source: ICD Fall 2018 Director Lens

What is clear is that the shape and nature of future skills and workforce will be different in the future than it is today. Some of it driven by technology, some of it by firm structure and some of it by what creates economic value. How fast and widespread those changes will be is still up for debate.

The Last Word

The impending advance of AI and automation holds significant potential to assist in nations with aging workforces and to make life easier. However, given that anywhere from 40-75+% of jobs in certain countries are at risk of replacement from AI and automation, we risk mass unemployment and social unrest at unprecedented scales if not done correctly and thoughtfully. Job training and reskilling strategies done in collaboration with business and government will be critical in mitigating the negative impacts of automation. Finally, it is important to consider that much of the workforce around the world is fearful of AI and automation for it puts their basic notions of self-worth and value at risk as a result of the loss of their job and income – essentially the fear of becoming more than expendable, but irrelevant. This poses a huge potential for fuel to the looming social disruption on our doorstep.

Considerations for Leaders and Organizations

1. Understand the issues surrounding AI and automation, particularly as it pertains to how to maximize productivity and margin, but also implications for job loss.
2. Develop a workforce strategy – what will you replace with AI, automation, gig employment, and how you will address displaced workers in terms of reskilling and retraining.

3. Convene and collaborate with government, business and education to discuss automation, skills, retraining and the gig economy from a policy and best practices approach to ensure competitiveness and appropriate involvement of all parties in programs.
4. Create initiatives to assist workforce with “AQ” – adaptability quotient for both firms and individuals

Questions for Directors

1. Just because we can, does it mean we should?
2. What is our labour strategy for the future? How much will we adopt AI and automation? Will we look to the gig economy? What supports do we provide to our contractors?
3. What kinds of retraining and reskilling programs are we offering our affected staff?
4. How will we support our entire organization through transformation of AI and automation?
5. How can we work with governments and publics to minimize the human impact of AI and automation?

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- ⁱ <https://www.ipsos.com/en-ca/knowledge/society/CanadaNext-2018>
- ⁱⁱ See *Us vs. Them: The Failure of Globalism*, Ian Bremmer, Portfolio Penguin, 2018.
- ⁱⁱⁱ The Fall and Rise of Canada's Top Income Earners, <https://www150.statcan.gc.ca/n1/pub/11-630-x/11-630-x2016009-eng.htm>
- ^{iv} Song, Jae, David Price, Fatih Guvenen, Nicholas Bloom and Till von Wachter, "Firming Up Inequality" NBER Working Paper 21199, May 2015
- ^v <https://www.politico.com/magazine/story/2014/06/the-pitchforks-are-coming-for-us-plutocrats-108014>
- ^{vi} <https://www.edelman.com/trust-barometer>
- ^{vii} <https://www.icd.ca/Resource-Centre/News-Publications/Director-Lens-Survey/Director-Lens-Fall-2017.aspx>
- ^{viii} [https://www.icd.ca/getmedia/a1b73c10-a1b9-4065-a671-87e9ec6ae13e/17-2366-Directors Lens Survey Fall 2018 EN final.pdf.aspx](https://www.icd.ca/getmedia/a1b73c10-a1b9-4065-a671-87e9ec6ae13e/17-2366-Directors%20Lens%20Survey%20Fall%202018%20EN%20final.pdf.aspx)
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- ^{xii} <https://www.technologyreview.com/s/531726/technology-and-inequality/>
- ^{xiii} Mutuality in Business Conference May 2018
- ^{xiv} Michael Hicks and Srikant Devaraj, "The Myth of Manufacturing in America," Conexus Indiana, Ball State University, April 2017, <https://conexus.cberdata.org/files/MfgReality.pdf>
- ^{xv} <https://brookfieldinstitute.ca/report/automation-across-the-nation/>
- ^{xvi} <http://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=1369>
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- ^{xviii} <http://www.pewinternet.org/2017/10/04/automation-in-everyday-life/>