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Canada Canada

FORESIGHT ON COVID-19

Possible shifts and implications

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Canada

This document reflects research on the potential medium- to long-term consequences of the COVID-19 pandemic by Policy Horizons Canada. It explores some potential changes, disruptions, and shifts that may arise due to COVID-19, highlights some critical uncertainties, and considers future-relevant questions. It also includes sections on using foresight in policy making, including working with scenarios, identifying policy implications, testing assumptions, and practicing visions thinking.

The content reflects desk research, expert interviews, conversations and workshops with policy makers, and literature reviews that took place between March and July 2020. Details are provided in the Annexes.

The purpose of this document is to support forward-looking thinking and inform decision making. It does not provide specific policy guidance to address COVID-19, and is not meant to predict the future.

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About our COVID-19 foresight research

Policy Horizons Canada (Policy Horizons) is a strategic foresight organization within the Government of Canada (GoC), with a mandate to help the Government develop future-oriented policy and programs that are more robust and resilient in the face of disruptive change on the horizon.

In line with its mandate, Policy Horizons aims to contribute to GoC policy makers' thinking about the potential medium- and long-term consequences of the COVID-19 pandemic and the implications for policy.

Amongst its activities, Policy Horizons conducts research on the question: **“What shifts might we experience in the medium term that challenge our policy assumptions and tools?”**

As such, Policy Horizons is engaged in a scanning exercise that includes:

- desk research and literature reviews
- engagements and collaborations across government departments and agencies
- conversations with national and international foresight practitioners, experts, and stakeholders

Many seasoned foresight practitioners, forecasters, and experts believe the world is experiencing the highest level of economic, political, and social uncertainty in decades. The number of “known unknowns” is extremely high. Foresight—the assessment of what might happen or be needed in the future—is more needed than ever.

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DRIVING FORCES

1. DRIVING FORCES

The COVID-19 pandemic is accelerating certain trends, spurring disruptions, opening new possibilities, and broadening the realm of the possible.

The content below provides an overview of these shifts in the areas of health, the economy, society, the environment, and governance. Most of the analysis is related to the general global context, while some references specific to Canada or other countries are highlighted.

HEALTH

Trajectory of COVID-19: Can safe, effective medical interventions control the virus?

The greatest uncertainties about the impact of the COVID-19 pandemic are, unsurprisingly, about the trajectory of the virus itself, and the abilities of governments to manage it with medicine.

Our capacity to control COVID-19—either through a preventative vaccine or effective treatments—will shape our ability to influence our futures.

There are many immediate and longer-term uncertainties. In the short term, how long will it take to produce mass testing capacity? And how might new technologies evolve (e.g. home-based testing)?

At the time of writing (July 2020), it remains unclear whether people will develop long-lasting immunity to COVID-19. And even if they do, how might we manage possible mutations of the virus? Will the pandemic persist? Or will immunity, an eventual vaccine, or public health measures extinguish it? And if there is a vaccine or treatment, how and when could it be widely deployed?

In one scenario, COVID-19 would become endemic across most of the world. Depending on the effectiveness of public health measures, continuing levels of infection might be treatable within the limits of well-developed healthcare systems. Where improved treatment protocols are available, they might decrease the rates of mortality and serious complications. But in areas with fragile health systems, the baseline levels could overwhelm hospitals and public health institutions, causing much greater mortality, health problems, and disruption.

Access to vaccines and treatment: Competitive markets or public goods?

Who will have access to a future vaccine or treatment? The question is legitimate for two reasons. First, some countries are selling COVID-19 tests and personal protection equipment (PPE) to the highest bidder in the marketplace. Second, nationalistic strategies have emerged to develop and/or acquire potential vaccines and treatments.

At the same time, other initiatives are emerging that are managed for the public good. The Coronavirus Global Response, led by the European Union, is a case in point. It aims to raise enough funds to ensure that diagnostics, treatments, and vaccines are developed collaboratively and provided to everyone.

A “winner” of the race to treatment and vaccines could attempt to use that victory to significantly shape geoeconomic, geopolitical, and societal futures. It may take time for production to meet global demand. This, in turn, may mean a limited supply of treatment and vaccines, at least initially. As a result, there will likely be an ethical debate about who can benefit, and equally important, who decides.

Long-term physical distancing: What factors cause individuals and groups to break the rules?

In several countries, the overlooked needs or special circumstances of certain population groups have contributed to COVID-19 hotspots and other shocks. If physical distancing remains in place to manage COVID-19, it is important to consider if some groups may be overlooked if they have barriers to respecting physical distance measures, or have limited patience to do so for long periods.

Some groups have financial or physiological unmet needs that become strong enough to break physical distancing rules. These could include, for example, people living in poverty who need to earn a living; single people wanting to build a relationship; and people who gain their esteem and sense of identity from charitable work or group dynamics. People will make trade-offs between their own needs and the needs of the larger public differently. Acceptance of risk also varies greatly across individuals, and notably across age groups.

Mental health: Will trauma be short-lived or sustained?

Many people are experiencing the pandemic as a strong adverse experience—and perhaps as a trauma. COVID-19 and containment measures are challenging a range of basic human

needs such as physical and financial security, belonging, and physical touch. Many people meet their needs for support and personal esteem through professional or non-professional in-person contact with others. Beyond this, the pandemic and its containment measures have often been characterized using the language of “war,” threatening psychological safety.

Will living this way be experienced primarily as short-lived adversity, or long-term trauma? How will the impacts of mental health affect individuals, groups, and societies?

The answers depend on a broad set of factors, including how long the pandemic continues, the number of waves of lockdowns and openings, and the level of financial, community, and childcare support that individuals can access. How many people will experience negative economic impact that significantly changes their standard of living? Will people feel empowered to make choices, or feel fundamentally trapped in traumatic and stress-inducing circumstances? What effect will the confinement, shift to new educational models, and household stress have on children, for whom COVID-19 represents a major formative event?

Pandemics: More frequent and devastating occurrences may be likely

In the first two decades of the 21st century, five new pandemics have emerged—about twice as many as those that occurred in the entire 20th century.¹ More are likely to come, and one of these could be more virulent or transmissible than COVID-19.

In the 20th century, pandemics such as the Spanish flu and HIV/AIDS had higher death tolls than COVID-19 to date. In the 21st century, some pandemics have much higher mortality rates (e.g. Ebola 25–90 percent, MERS 35 percent). In a report published in September 2019, the World Health Organization (WHO) pointed out that if a 1918 influenza-type pandemic were to occur today, it would kill up to 80 million people and wipe out five percent of the global economy.²

While COVID-19 is a naturally occurring virus, it is plausible that pathogens could be created and released either intentionally or unintentionally. This becomes more likely with the ability to sequence microbial genomes and to synthesize genetic material cheaply. It is conceivable that state or non-state actors could develop and produce pathogens designed to harm animals, plants, or humans, either directly or indirectly.

Given the potential impacts on health and the economy, the risk of reckless creation and unintentional release of synthetic organisms may rise in prominence as a public and policy

¹ <https://www.visualcapitalist.com/history-of-pandemics-deadliest/>

² World Health Organization (2019), [Report](#).

concern. Best practices to identify, isolate, and treat COVID-19 could prove invaluable in responding to intentional introduction of a synthetic biology pathogen. Policy Horizons' [*Biodigital Convergence report*](#) explores the broader context in which we might experience and manage bio-risks and opportunities.

ECONOMY

The shape of economic recovery: Will it be V, U, L, W, or K?

There is significant conversation around the “shape” of the economic recovery (e.g. V, U, L, W, or K).³ Many interventions across the world seem intended to keep the economy on “life support” until the pandemic is under control. This assumes that economic activity will rebound once that happens. However, the economy is an aggregate of many activities. While an aggregate measure may follow a particular pattern, individual patterns may vary significantly within different sectors of the economy.

Further, the appearance of the economic recovery may vary based on the way that economic performance is measured. For example, differently shaped curves may be seen for gross domestic product (GDP) growth, employment levels, or the value of the stock market. Relying heavily on traditional macroeconomic indicators may skew COVID-19 responses toward activities that will be positively reflected in these metrics.

Moreover, even before the pandemic, policy makers were asking questions about the degree to which economic metrics reflect the welfare of citizens. The collective “time out” on economic activity may be an opportunity for reflection. Is the current set of core economic metrics a sufficient measure of how well people are doing? Would other metrics help broaden the analysis?

Should the pandemic continue for a prolonged period of time, including future waves of COVID-19, economic recovery might move beyond the realm of crisis management.

Economic opening: Uneven across jurisdictions, impacting value chains differently

If jurisdictions do not control the pandemic with similar policies enacted at similar times, new “bottlenecks” may occur in supply chains.

On the supply side, long and complex global supply chains to produce physical products mean different parts of the chain are in different places. All parts need to work for the supply chain to function. In some countries/regions, one part of the supply chain may be open (i.e. workers can go back to work). In others, the chain may be closed (e.g. workers are sent home because of a

³ <https://www.reuters.com/article/us-health-coronavirus-economy-graphic/alphabet-soup-how-will-post-virus-economic-recovery-shape-up-idUSKCN21R242>

second or third outbreak of COVID-19). This may make an economic restart uneven and intermittent.

Similar bottlenecks can occur on the demand side. Even if supply chains become fully operational, the markets for their goods could still be affected by lockdown conditions, depressing demand. For example, automobile factories might produce cars in the People's Republic of China (hereafter "China") or Japan for export. However, if American and European economies are experiencing economic or transport restrictions, a lack of market demand could cause factory closures to prevent excess inventory, even if there is no COVID-19 in the producing jurisdiction.

Consumer and corporate confidence: Uncertain rate of return to pre-COVID-19 levels

The economic impacts described above could persist even if many aspects of economic activity resume. While incomes may stabilize, citizens may not spend as much as they did before the pandemic. There are several potential reasons for this.

First, many consumers and corporations have drawn down equity or increased debt during the pandemic to make up for lost revenues. Firms and individuals may seek to pay off debt or rebuild savings to a level that would make them resilient against further shocks, thereby causing consumption to fall.

This shift in behavior could also manifest as increased risk aversion for some consumers and small businesses, who feel that the pandemic has put them in a precarious financial situation, leading to fewer non-essential expenditures and investments.

Second, borrowers may face higher interest rates and greater risk premiums from investors due to higher perceived or real levels of the risk of default or insolvency.

Third, banks may minimize losses from bad loans to consumers or businesses. This, in turn, could lead to tight or costly money supply from banks, as well as in bond and equity markets. Lack of access to money in the short term could push companies that could be financially viable over the longer term into insolvency.

Fourth, if the pandemic lasts a long time and job prospects are scarce, many post-secondary students may stay in school. This may increase debt for students and/or their parents, and reduce consumer spending for both. Students may manage these debts by shifting some or all of their studying online and continuing to live at home. However, these moves reduce spending and employment in college and university towns that would normally see a large influx of domestic and foreign students.

Fifth, the hospitality and entertainment sectors may take a long time to recover. Consumers may continue to spend less due to financial uncertainty or risk aversion. Many may still fear catching COVID-19 or another virus that may subsequently appear. This could affect the popularity of live performances, festivals, or sporting events. It may also reduce activities that require closer contact, such as going out to restaurants, bars, and movie theatres or visiting museums, galleries, and theme parks.

Sixth, retail travel may remain depressed, particularly situations that put travellers in close contact with people from other regions. Airlines, cruise ships, and resorts may not recover for a long time if retail travellers fear a re-emergence of COVID-19 or the outbreak of a new pathogen.

Finally, corporate expenditures on travel, accommodation, meals, and entertainment may also decline, with the intent of saving money and avoiding risk. Businesses may want to reduce the risk of exposing employees to infection, as well as avoid negative publicity. Large business gatherings (e.g. conventions) or international meetings, for example, are hot spots for contracting infections. Consequently, public opinion might criticize corporations that put the wider public at risk by holding these types of events.

Oil: Downward pressure on petroleum prices

The demand for oil has quickly dropped by about 30 percent due to reduced consumption of transportation fuels in the face of the COVID-19 lockdown. This alone would have led to lower prices in the short term. However, the pandemic-induced demand shock also coincided with a supply shock. In early 2020, a breakdown in OPEC+ saw the Russian Federation and Saudi Arabia both increasing production and competing for market share. While there are some signs that producers will reduce production, the agreement may not hold. Regardless, the cuts only amount to about one-third of what would be needed to match supply with current demand.

Canadian oil companies operate in this global context, but have little control or influence over it. With 96 percent of its oil production going to the United States (U.S.) in 2018, Canada has essentially one buyer. Conversely, the U.S. has access to a wide range of suppliers, including itself. Over the past decade, the U.S. has gone from a large importer of oil to a net exporter. This is primarily due to the fracking revolution. Due to ongoing production in the first months of 2020 (despite the drop in demand), most oil storage capacity was full across the globe. Storage was particularly acute in the U.S., specifically in Cushing, Oklahoma where Canada sends much of its western oil for storage and distribution to American refineries. This lack of storage led to the negative price of oil in April. Contracts coming due in April required buyers to take

physical delivery of oil at the Cushing terminal and buyers had to bid against each other for the remaining limited storage capacity.

As storage becomes full, it backs up through the supply chain. Eventually, producers must reduce or shut-in operations (i.e. stop producing oil even though supply is available). At storage terminals in the U.S., Canadian producers already compete with American counterparts for storage or sales to U.S. refineries. In that case, no producer will want to shut-in production of existing wells or oil sands operations; it is expensive to restart. Furthermore, geotechnical issues may prevent bringing some fracked wells back online if they have been shut down for too long. As a result, U.S. producers may accept lower than break-even pricing for an extended period to keep wells operating. This could suppress demand and/or prices for Canadian imports, and in turn could cause increased shut-in of Canadian production or force producers to accept even lower prices than U.S. producers. Either case will likely lead to fewer jobs and capital expenditures in the Canadian oil sector.

As a further consideration, U.S. President Trump has signaled he may impose a tariff on imported oil to maintain price stability for U.S. producers and avoid layoffs in the sector. While such a tariff could target oil from overseas or Mexico, it could affect Canada as well. Although it would take time to reconfigure refineries and infrastructure, the U.S. may one day become self-sufficient in oil. In that case, it would not require Canadian oil imports.

The impacts of oil prices and production might extend beyond the economy, possibly affecting government revenues.

Real estate: Downward pressure on prices

The economic crisis could put downward pressure on housing and rental prices. Some sources cite a drop of 10–18 percent over the coming year.⁴ People who lose their jobs could be forced to sell their homes. They would find it hard to re-enter the housing market until they find long-term employment, or potentially end up paying significantly higher interest rates for mortgages.

Some major cities have put limits on Airbnb rentals. Homeowners can only rent their principal residence, and rooms in it, on Airbnb. This could put several thousand units back on the market. Homeowners and investors simply cannot afford to carry the units as the return from yearly rentals is much smaller than from daily rent. This addition to the housing supply (an eight percent increase in March in Toronto) during the economic crisis could add to the downward pressure on housing prices.

⁴ <https://www.cmhc-schl.gc.ca/en/housing-observer-online/2020-housing-observer/2020-housing-market-outlook-special-edition>

Ex-urban, rural, and remote communities may be desirable living places. They could permit lower costs alongside the convenience of online delivery and fewer interactions/hot spots for diseases.

Office and retail space could also take a big hit. Many businesses with Class A office space (e.g. banking, insurance, investment, law, and accounting) may have a smaller footprint because of automation, virtual work, sector consolidation, or bankruptcy. Additionally, physical distancing requirements call for more square meters per employee, which makes office space more expensive.

Income inequality: Accelerated and deepening

The trend of income inequality is likely to accelerate. Many low-income individuals have lost jobs and assets. At the same time, skilled and professional workers have kept their salaries, benefits, and homes. Automation or a recession could deepen these inequalities.

Many low-paid front-line workers have risked their lives to keep essential services going. Will they expect changes to their working contracts and conditions? Current short-term income support programs could raise expectations that a new deal is possible.

Inequality: The pandemic is exacerbating overlooked inequalities

New kinds of inequality could emerge as the pandemic continues. Single parent families make up 20 percent of households (of which 81 percent are lone mothers). This group faces barriers to enter the labour market. Single parents have struggled with the burden of having kids at home and will continue to do so if kids cannot go back to affordable day care, school, or summer camps.

People with no or on low incomes face additional disadvantages. Housing arrangements could make it difficult to self-isolate or properly practice physical distancing. Their kids may lack access to the Internet and IT equipment, making home schooling extremely challenging or impossible. They may lack the space for a home office, making it difficult to work from home. They may not have access to a personal vehicle, and therefore face additional health risks from public transit use. They may have limited or remote access to health care.

Finally, vulnerable groups are less able to return to the workforce. They may remain in isolation for months or years until a safe and effective vaccine is available. This group includes seniors and those with compromised health, representing approximately 10–20 percent of the population.

Cross-generational tensions might emerge if young people feel they are losing their freedom and livelihoods to protect older people from COVID-19.

Will reopening the economy create new inequities? Will those who can return to the job market earlier get the first job opportunities? Will new job opportunities privilege people who are well-off because they have more physical space in their house and faster Internet? Will some schools open and others stay closed? Will some people be allowed to travel and others not? Will ex-COVID-19 patients be given special privileges because people do not believe they can be infected again?

Digital domination: The pandemic will likely further strengthen platforms

Around the world, the pandemic is creating significant financial stress on firms—particularly micro-, small- and medium-sized enterprises—in industries affected by shutdowns and social distancing.

While entertainment venues, restaurants, transport, and education providers are suffering from significant reductions in consumer spending, firms that support “the stay at home economy” are booming. Online retail and subscription services, computer gaming, and the big digital platforms have all experienced increases in demand.

This has been reflected in strong stock market performances for the FAANGM firms (Facebook, Amazon, Apple, Netflix, Alphabet/Google and Microsoft). Amazon sales have boomed with revenues up 26 per cent to \$75B USD in the first quarter of 2020.⁵ In Canada, Shopify was the most valuable publicly-traded company in May. This was a result of its quick and concentrated efforts to target retailers (in Canada and the U.S.) who were forced to rapidly move their businesses online.⁶

The pandemic is further amplifying the impact of digital platforms on the openness, accessibility, and fairness of markets in terms of competition.

The COVID-19 pandemic could simultaneously reveal the importance of digital platforms to the Canadian economy during times of crisis, as well as the extent of their dominance and the challenge they pose to free and fair competition.

⁵ <https://www.theguardian.com/technology/2020/apr/30/amazon-revenues-jeff-bezos-coronavirus-pandemic>

⁶ <https://www.ctvnews.ca/business/shopify-unveils-new-products-aimed-at-entrepreneurs-grappling-with-covid-19-1.4946724>

Will the economic effects of the pandemic create a crisis for competition? Will digital platforms seek to use higher profits and greater power to extract new concessions from consumers or governments?

Pensions: Can providers meet their obligations?

Public and private pension plans carry investments that may take years to recover. The collapse in energy prices, coronavirus, and geoeconomic tensions could ricochet through the Canadian economy for years.

Falling energy prices, stock valuations, stranded assets, and lower royalties to governments could be a drag on the economy and thus slow recovery of pension investments. Beyond energy, pension funds confront other issues. These include slow economic growth, low interest rates, and high government debt due to economic support and stimulus packages. Such issues may test the ability of individual or group pension funds to meet obligations. A recession, depression, or dramatic shifts in global trade rules would make matters even more challenging.

Payments from personal investments, as well as from public and private pension plans, could be reduced. If that happens, seniors, disabled, and other vulnerable people could depend more on the state. This growing dependence would occur just as government revenues are falling.

It also generates broader questions. How could this impact the willingness of younger generations to pay taxes and contribute to pension funds? How could it change investment behaviour if people have no old-age security and need to build it themselves?

Strategic economic sovereignty: How far does this go?

We are seeing signs that governments worldwide are accelerating plans to achieve strategic economic sovereignty—programs to secure strategic resources and economic inputs.

“A strategic resource is an asset that is valuable, rare, difficult to imitate, and non-substitutable.”⁷ It gives countries and businesses an opportunity to develop a competitive advantage over rivals. In June 2019, the U.S. Government identified 35 minerals whose supply chains were seen as essential to the prosperity and security of the country.

The commodities that are considered “strategic resources” are shifting. For instance, there is a global surplus of oil, but growing demand for lithium and other rare earth minerals for batteries

⁷ Barney, J. B. 1991. *Firm resources and sustained competitive advantage*. *Journal of Management*, 17, 99–120

and electronic components. In a post-pandemic world, food—or water or phosphate for fertilizers—might be considered strategic resources.

Geopolitical rivalry for strategic resources may increase in several ways. Great powers or local hegemony might take over resources or related governments by force, bribery, or outright purchase. China has been investing in strategic mineral operations all over the world for decades.

Alternatively, increased supply of strategic resources might come through investment in new mining surveys and techniques, recycling and reprocessing, and the invention of technological alternatives.

An open trading system assumes the purchase of supplies on the open market at market prices. It benefits from low costs and efficient allocation. However, that assumption might be risky. Local innovation and production of strategic resources may strengthen. Over time, this could have an impact on Canadian mining and manufacturing, for example.

Supply chains: Will “smart supply chains” deliver greater resilience?

There is pressure to reconfigure supply chains to be more resilient. A number of options and implications exist to unwind or re-invent a globalized economy.

Three possibilities following the intense COVID-19 pandemic period may include:

- De-globalization or a return to local/national supply chains: for essential goods with no substitutes (e.g. surgical masks), production could be reshored and carried out locally. Exports may be restricted as needed.
- Resilient global-regionalism: a continued but more geographically diversified, globalization of value chains that marry resilience with economic benefits. For important goods with possible substitutes (e.g. food), a hybrid approach would incentivize local production, but allow trade to keep prices competitive during non-crisis times.
- Globalization 2.0: where design of the value chain depends on the nature of the good and its importance. For most goods not critical for survival and where a competitive price is a key factor, efficient globalized supply chains would serve the public interest.

In the medium term, a set of smart technologies (e.g. artificial intelligence [AI], 3D printing, and synthetic biology) might transform manufacturing. One can imagine Canadian manufacturing

units participating in global supply chains and, in a crisis, repurposing quickly to serve local or national needs.

The demand for “short supply chains”—which can be costly, inefficient, and not resilient—might need to be redirected toward a demand for “smart supply chains.”

Supply chains for robust and resilient services in times of crisis are worth exploring. AI, telepresence, and robotics can bring expertise and presence for assistance, support, care, repairs, and ongoing essential services in a protracted crisis. Some of it could be programmed into the products and infrastructure built over the next decade.

The shifting role of the state in the economy: What will be expected of governments?

A variety of demands could push governments around the world to play a larger and more forward-looking role in the economy. In a period of economic stagnation or recession, individuals and businesses might avoid taking further risks and expect long-term financial support from the government. At the same time, we might see pressures to reduce costs, lower taxes, improve service provision, upgrade infrastructure, and stimulate growth.

The idea of “building back better” is gaining more prominence globally. What is expected of governments in the future may be significantly influenced by that approach.

Public debt: How will the public acceptance of debt evolve?

How will Canadians feel about the increased debt? As the costs of the COVID-19 response become evident, will taxpayers resent the tax burden required for social supports, or will they continue to support them?

How long will citizens expect the government to continue supporting the economy? And how does that line up with the expectations of a classic, free-market economy? Is a new economic model emerging?

Some considerations go beyond the debt created to support the wages of citizens. Support systems put in place by many developed economies might change the relationship between the state and businesses. Governments in many countries have temporarily nationalized the economy. They have become the guarantor of last resort. Canadians have taken on much of the risks for many businesses. Will citizens expect new conditions on how businesses behave, or how they are forced to behave? How will citizens think about bailout plans for businesses for sustained lockdowns and recovery? For example, would banks that mostly grant loans to large

corporations receive further support? Will there be more demand for fairer wages for low-income workers? A higher commitment to sustainability?

Migration: How will the pandemic affect flows?

Immigration is needed to attract the right talent to grow an economy. Temporary labour is also required in specific sectors such as agriculture and fisheries. However, this has become more complex due to new, pandemic-related public health considerations. Some countries and communities may actively discourage or ban internal migration or immigration as an existential threat for two reasons. First, they may fear a lack of effective response to COVID-19 in the countries supplying the immigrants. Second, they may fear becoming the source of the next pandemic.

A limited supply of “safe” foreign temporary workers could generate international competition. Health considerations could also become part of migration agreements between countries.

At a global level, new waves of massive migration could occur from and within regions where the pandemic has accelerated famines, conflict, economic collapse, or failed states, especially in Africa and the Middle East.

THE NEXT DIGITAL ECONOMY AND THE FUTURE OF WORK

The pandemic has brought into light many aspects of the [Next Digital Economy](#) and of the [Future of Work](#), which Policy Horizons has previously addressed.

COVID-19 will likely accelerate the transition to a digital economy and the game changers affecting the amount and nature of work. Many examples have already become mainstream. These include remote work, repurposing of multi-functional manufacturing platforms, onsite 3D printing where goods are needed, and temporary value chains. Changed behaviours, mindsets, and business models will have an impact on the future. Four aspects are considered here.

Automation: Accelerating investment

COVID-19 has created a production shock because humans could no longer function in production/value chains. This had a tremendous cost for the economy, and for many businesses. Some may view robots as more robust workers than humans. Businesses and other institutions are likely to make stronger business cases for adopting technologies and funding innovations that reduce humans from the production value chain.

The trend toward automation might also occur due to the lack of required human resources. For example, in a COVID-like world, temporary farm workers are less easily available; cleaning personnel in the home or across enterprises are less desirable; and there are not enough delivery truck drivers to respond to increased demand from online shopping.

Previous Policy Horizons work noted the rate of automation relies on more than technical feasibility. It also depends on social acceptability and regulation, both of which will likely favour more automation. For example, policy makers may be pressured to create and adapt safety policies governing autonomous vehicles.

Remote work: A faster shift to remote cognitive and physical work

Due to containment measures, many employees have been equipped to work from home, and learned how to work remotely. As a result, they could experience both its benefits and inconveniences. While organizations often had reservations about staff working from home, they now have a real-life pilot. What worked and what did not? What can be done remotely and what cannot? What flexibilities and boundaries/safeguards are sensible? Learnings from the current situation are likely to bring more flexibility to remote working.

The option of working from home might have secondary impacts. For example, soon-to-be-retirees may prefer to stay in the labour force if they can continue working from home. If this arrangement becomes more available and acceptable, would career professionals postpone retirement?

Another aspect is the notion of being “present” or “in person.” Some functions legally require people to be present, provide “wet” signatures, and so forth. Yet court hearings, notary and legal services, government services, insurance claim inspections, etc. are all rapidly adapting to a world where people are not physically present. Adaptations during the pandemic to remotely deliver legally binding services will likely continue after the end of mandatory physical distancing.

Policy Horizons’ [Future of Work](#) report addressed the idea that “where people work and earn may not be where they live and spend.” It noted that “local” has been challenged as an important staffing consideration for many jobs. Whether employees were living close to their workplace did not matter. Indeed, for a number of jobs, remote and onsite work functioned equally well. This might change assumptions for hiring.

The report also noted that advanced telepresence would allow workers to perform physical tasks from a remote location. This included offsite experts using telepresence to direct low-skilled workers in carrying out complex tasks. If human contact remains undesirable/dangerous or unfeasible due to travel restrictions, this type of practice might increase.

Employer-employee relationships: A shift away from long-term employment

Policy Horizons’ [Future of Work](#) report notes the shifting relationship between employers and employees as a key game changer. Long-term, more formal employment was already declining before the pandemic. The financial insecurity/turbulence faced by businesses and the economic downturn will likely accelerate the growth of nonstandard, precarious employment—part-timers, gig workers, and those with multiple employers. This comes when people will likely be looking for more financial security for years/a generation to come, and the prospect of being a gig worker or independent contractor might be less attractive. The demand for universal basic income or universal basic assets, as well as for arrangements such as portable benefits systems, is likely to increase.

Digital infrastructure: An increasingly critical foundation

As much of our economy, lives, and government services have been expediently migrated online during the pandemic, the underlying digital infrastructure becomes increasingly critical. Access to, and resilience of, digital infrastructure will likely become more important.

Cyberattacks on digital infrastructure are increasing. With a longer-term perspective, the need/expectation for more attention to the security and resilience of this crucial infrastructure is clear.

From a societal perspective, demand for access to this infrastructure as a public good could also increase. This is especially true if other public services increasingly use digital infrastructure and access is revealed as a key determinant in outcomes. Such services could include education, health, and government services.

SOCIOECONOMIC

Life & livelihood: Will the economic, public health, or social imperative prevail?

How will governments frame the relationship between the economy and social institutions in the management of and recovery from the pandemic?

On one hand, an economy-first or a public health logic may prevail. In this case, governments could face difficult choices that pit health needs against scarce economic resources. Any benefits at one end might be cancelled out by a loss at the other. For example, it could set the safety of more vulnerable populations against a desire to stop the continuing destruction of private wealth. Investment in health could also come at the expense of economic opportunities for both workers and investors.

On the other hand, a social-first logic could reframe problems posed by the pandemic as opportunities. How could governments create abundant quality of life by strengthening supportive social institutions, building resiliency, and alleviating inequalities? The pandemic has demonstrated the extent to which economic activity rests upon social services and systems, such as childcare, education, household and community relationships, and public health capacity.

An emphasis on social wellbeing could create conditions for government to re-evaluate investments in the social institutions that support individual and community development throughout the human lifecycle. The pandemic may expose gaps and opportunities for early childhood development, entry into the labour force, and care for the elderly.

Economic opportunity: A phased reopening will have long-term economic and social implications

The economy will likely reopen in stages, to balance the risk between public health and economic activity. Determining which workers return to work and when this occurs—led by regional strategies, employer preferences, and employee circumstances—could shape the opportunities and life chances of different groups.

Here is a broad set of considerations of short-term realities that could affect long-term prospects in some countries, including Canada:

- Essential workers on the front lines are more likely to be women and visible minorities. As a result, these populations could bear a higher risk of burnout and infection. Will wage subsidies to these workers lead government and society to increase their compensation in the longer term?
- Those who can continue to work remotely could be expected to return last to shared workplaces, leaving this population both healthiest and least affected economically.
- We might see a return to more “traditional” gender roles, as those who identify as women are disproportionately affected by childcare (regardless of schools being open, partially-open, or closed), reduced after-school care, and elder care responsibilities. This may also create a barrier for them when re-entering or actively participating in the labour market.
- Single parents, particularly those on low incomes, may have fewer options regarding their return to work and their children’s return to school/daycare.
- A shift to single-income households will test the resiliency of those who depend on two incomes, both in terms of finances and mental wellbeing.
- There will likely be more job seekers than available positions, placing downward pressure on wages. The adoption of shift schedules to enable physical distancing could also reduce hours and earnings.
- Early-career job displacements deeply affects youth.
- To the extent that employers can legally choose who returns to work, they may favour younger, healthier workers who are more likely to rebound if infected.
- There may be greater risk for discrimination of employees who are more vulnerable to contracting COVID-19 due to age, race, gender, class, or health.

Social unrest and change: How widespread will it be, for how long, and what may be the triggers?

The pandemic has pushed to the forefront existing inequalities and their disproportionate impacts on racialized communities, women, children, the elderly, and Indigenous peoples in ways that cannot be ignored. Threatened basic human needs, prolonged physical isolation, and existing systemic disadvantages and racial tensions further exacerbate an already difficult situation. In the near future, a slower economy and a more competitive job market post-

pandemic may significantly deepen these pre-existing inequalities and extend them to more people. And as this inequality expands to affect more citizens, the contrast between the marginalized masses and the privileged may grow clearer. Such a future is primed for upheaval.

Digital media may continue to play a substantial role in raising (or drowning) calls for social change, and be used for organizing, directing, and amplifying movements. This was evident during the most recent #BlackLivesMatter and #BlackoutTuesday protests. The former has proven that even during the pandemic where physical distancing measures were in place, demonstrators opted to gather in person, while simultaneously participating in virtual protests and live broadcasts.

Arguably, structural inequality has yet to prompt a transformative disruption in Canada possibly due to the existence of a basic social safety net, relatively high levels of trust and social deference, and a certain approach to individual responsibility. Will COVID-19 change that?

Social cohesion: Are we really “all in this together”?

Will the sense of shared vulnerability to a health threat, and shared experiences of pandemic response bring Canadians together in new ways? Will excluded populations feel that we really have been “all in this together” as Canadians? Could those with inherited economic opportunities feel an increased connection to marginalized communities?

The pandemic has cast a stark spotlight on the many inequalities of Canadian society. In many ways, it has worsened the effect of those divisions. Poor and homeless Canadians have been especially at risk, as have elderly Canadians in institutions, some Indigenous populations, and some visible minority groups. There may be more instances of blaming groups for spreading the virus, or for not playing their part. This could lead to a retrenchment of antagonistic group identities.

But the pandemic has also brought inspiring stories of compassion and empathy to light. In some cases, it has coaxed out our best capacities for cooperation, selflessness, and charity. Bonds forming between neighbours, communities, regions, and generations may provide examples of how groups overcome differences. Will these be replicated and generate community resiliency, or be abandoned after the intense phases of the pandemic end?

Charities: A sector increasingly at risk

The pandemic has hit the charitable sector hard. Many traditional sources of fundraising such as benefit events have dried up, even as demand for some charitable services is overflowing.

In the short and medium terms, a more difficult economic landscape might also reduce both charitable giving and volunteering.

Large, established, broad-based charities are most likely to access emergency funding and adjust to the new fundraising environment. But many smaller, specialized charities may not survive. This is a problem because the small ones disproportionately serve the most vulnerable populations, such as sex workers or marginalized persons in remote communities.

This dynamic could increase demands on government to provide services directly to communities with which it has fewer direct contacts and less experience.

Post-pandemic education: Physical, digital, or both?

There is a possibility that the majority of schools and universities will return to “business as usual” after the pandemic, reverting to in-person, and face-to-face learning in lectures, seminars, and labs. In this world, online class delivery is more common than pre-crisis. But it may function primarily as a useful complement to physical delivery, and a fallback option in the event that a resurgence of the pandemic—or new viruses—disrupt gatherings and/or travel.

Another possibility is that an increasing number of schools and universities optimize their online educational offerings such that virtual learning becomes the norm, rather than the exception.

Some educational institutions may do this in anticipation of future outbreaks and disruptions. Others may pivot to an “online-first” model to attract international students who are disinclined to physically relocate while COVID-19 remains endemic.

A wave of innovation in digital coursework and engagement could increase the attractiveness of digital courses while reducing fixed and marginal costs for providers. Close collaboration with corporate partners and professional certification bodies could create a new paradigm surrounding the role of schools and universities in digitally preparing students for the new world of work.

Such a shift in the educational model for large numbers of students could create gaps in the social and networking experiences that are valuable by-products of the university experience. These gaps offer opportunities for entrepreneurs to physically connect young people “off campus,” or to network and socialize in novel, digital ways. In addition, a rush for online accreditation could occur as organizations, unburdened by physical assets, seek to enter the for-profit education space.

As competition in the digital space increases, elite institutions would be incentivized to double down on the expense and exclusivity of their physical instruction.

To what extent will disruptions to educational institutions—particularly those currently relying on the physical presence of international students—result in fundamental shifts in educational strategies and preferences? And what could this mean for labour markets and the quality of formative student experiences?

Millennials & Generation Z: How will the pandemic affect their economic and social opportunities, and willingness to take risks?

Will Millennials and Generation Z acquire the tools to be more or less resilient through and after the pandemic? Millennials were already experiencing difficulties due to the fallout from the Great Recession and the negative impacts of the changing nature of work. Consequently, they may re-engage in both the economy and society at different speeds.

The nature of social engagement is thought to be heavily influenced by the conditions in place when people enter adulthood and attempt to join the workforce. Will young people retreat into fear, caution, and conservative spending habits? Or will they blossom after being empowered to achieve life opportunities and financial wellbeing? Young Canadians may judge the role and legitimacy of government based on how well they see themselves and their values reflected in its responses to the pandemic.

There is also uncertainty about how young generations will form relationships if human contact is restricted during their formative development. Will the loss of daily rituals and rites of passage permanently mark these generations? On the other hand, multigenerational living that provides unpaid care and reduces living expenses may become a new normal. If so, connections may intensify within extended families and groups of housemates.

Reconciliation: Can public health responses be an opportunity for reconciliation itself?

The COVID-19 pandemic demands exceptional resources, time, and attention. This could threaten to delay or detract from other priorities, such as reconciliation. But this is not certain: there are signs of an opportunity to promote reconciliation and learning within the public health response, bearing in mind the Calls to Action 18 to 24 of the Truth and Reconciliation Commission.

As of July 2020, First Nations, Inuit, and Métis communities in Canada experienced lower rates of infection and case fatality, and a higher recovery rate than non-Indigenous Canadians. This

may be due in part to the decisive actions of Indigenous communities and bands based on self-determination and Indigenized approaches. For example, many communities instituted stringent internal public health protocols, and restricted travel into and within their territories. Indigenous public health organizations also produced and distributed guidance materials that were rooted in Indigenous worldviews.⁸

While there is no guarantee that these results will continue in subsequent waves, these positive outcomes mark a major change from the H1N1 influenza pandemic in 2009, during which infection rates among Indigenous persons were higher than among non-Indigenous Canadians. The H1N1 infection rate among the Inuit, for example, was more than 50 times higher than the general population. Indigenous communities' positive first-wave results during COVID-19 are especially notable given the ongoing structural inequities and challenges to the social determinants of health that face Indigenous people.

⁸ <https://www.cmaj.ca/content/192/38/E1098>

ENVIRONMENT

Climate change: Is a more holistic agenda emerging?

The climate change agenda could be influenced by the COVID-19 pandemic, as there are similarities. They both refer to biological processes not always easy for human ingenuity to control. They will both have major impacts economically and socially, evoking the sentiment that “we are all in it together.” And they both represent a level of existential risk, requiring significant rethinking and restructuring of the economy.

Will the pandemic spur a greater desire to tackle climate change? Or will desires for an economic recovery push environmental concerns aside?

The global response to COVID-19 will occupy the same years that are crucial to address existential threats for human survival from climate change. There is no “other budget” of funds or time to tackle this “quick emergency” and “long emergency” separately. On the other hand, leaders across different sectors might use the opportunity created by the COVID-19 pandemic to drive a more holistic agenda.

Energy Supply: Will energy supply chains become more local and distributed?

The COVID-19 pandemic has brought into question the reliability and security of global energy supply chains, particularly non-renewable liquid fuels that must be extracted, refined, shipped, and distributed across many jurisdictions. As a result, governments and multinational firms are exploring possibilities for more local, distributed sources of energy, including further expansion of renewable energy systems and significant investments in the “hydrogen economy.”⁹

Will the pandemic accelerate the development and adoption of alternative sources of power generation at a local level, further depressing demand for oil and coal? Or will lower prices for fossil fuels deter governments and companies from making the necessary investments in new energy infrastructure required to meet the requirements of modern life?

⁹ <https://www.worldenergy.org/assets/downloads/WEInnovation-Insights-Brief-New-Hydrogen-Economy-Hype-or-Hope.pdf>

De-urbanization: Will people return to living in the country?

The rapid transmission of COVID-19 has resulted in policy measures that support both physical distancing between people and closures of many core urban gathering places. The result is a transformation of the relationship between individuals and spaces. People are increasingly questioning where they live, how they live, and how they interact with the built environment.

For those who are fearful of future transmission and can telework, moving to rural areas is an option. The accelerated digitalization of the economy has reduced previous obstacles to remote living, namely the lack of business, social, and commercial opportunities. The combination of remote working arrangements, online shopping, and increase in using video conferencing tools to connect with loved ones reduces the burden of isolation from urban centres. Even for those who do not fear transmission, there may be an appeal to building a life in a non-urban context.

If moving to rural areas appeals to a large number of urban dwellers, previously undeveloped lands may become inhabited. Services and infrastructure would need to follow, and sprawl may threaten protected regions. Wildlife could be pushed further away or compete with new developments. At the extremes, greater levels of human contact with nature may, perversely, increase the risk of inter-species virus transmission.

GOVERNANCE

Anticipatory governance: Siloed progress or system-wide innovation?

Many observers argue that lack of preparation for the pandemic was a failure of governance. In 2015, Microsoft founder Bill Gates delivered a TED talk on lack of readiness for a pandemic. In 2018, health security organizations ran intricate simulations of rapidly spreading pandemics, and the World Health Organization warned of the increasing risk of a significant pandemic.

Even with the most complete data, and knowing there was an emerging health crisis in December, governments across the world waited an average of 1.5 months after the first reported case to take strong measures such as lockdowns.

Humans have short memories, it is often said. However, after traumatic events, memories might be longer. Canadians may watch more closely to see if governments better prepare for the "next time" a large disruption hits. As a result, governments may be called upon to put in place stronger systems for foresight, anticipatory governance, and decision making.

The interconnected, complex nature of exponential risks such as pandemics, large-scale cyber attacks, or financial crises requires government departments to coordinate, collaborate, and prepare together. We might see an increased focus on the creation of systemic resilience, and the strengthening of anticipatory governance structures.

Democracy: Are liberal democracies on a slippery slope to authoritarianism?

Crises such as pandemics produce extraordinary government responses, which often amplify state authority at the expense of civil liberties. This generates a critical uncertainty about the health of democracy and potential growth of authoritarianism in a post-pandemic world.

In response to COVID-19, authoritarian regimes have consolidated or expanded their powers. Democratic states have also taken steps to restrict citizen movement and assembly, while deploying new technologies to put citizens under surveillance. In some cases, the surveillance has provoked social unrest couched in terms of resistance to state tyranny. Such unrest could grow—even in countries with strong traditions of trust and deference. It would likely arise if the pandemic persists or intrusions on civil liberties are not rolled back as the crisis abates. These

developments might revitalize citizens' commitment to democratic oversight and participation, but could also make populist anti-establishment movements more attractive.

Similarly, democratic publics may see the actions of authoritarian states as more effective responses to COVID-19. They may also value the authoritarian-type measures of some democratically elected governments. If so, they might accept diminished civil liberties. This could weaken strong democracies and push some weaker democracies worldwide to the brink of collapse.

Elections in an era of physical distancing are another important issue. The first rescheduling of elections has already occurred, which can be a slippery slope for democracies.

Surveillance social contract: How much data and privacy are citizens willing to exchange for collective safety?

The surveillance society has been growing for decades. In response, a highly individualistic view of privacy has been advanced to protect against government or private intrusion. The COVID-19 pandemic could change this dynamic. Will citizens accept, or even demand, new surveillance measures to limit the potential for further outbreaks? Once introduced, surveillance measures tend to stick around.

During and after the pandemic, the question may no longer be “should we live in a surveillance society?” Instead, it may be “what makes for a good surveillance society that is appropriate for an open democratic society?” Until now, the privacy debate has focused on whether individuals can “control” their personal information. It may shift to the general conditions that would be set for large data analysis systems that operate in the background.

These shifts might force us into a more nuanced and less ideological exchange about the relative social benefits of privacy and surveillance. New ways of gathering and processing data, ranging from data trusts, mesh networks, encryption, and anonymization schemes may offer a range of new options. Privacy and surveillance may not always be mutually exclusive.

The pandemic makes these questions practical and urgent. Emirates Airlines is already performing COVID-19 blood tests on travelers. What systems will manage the potential for extracting enormous amounts of genetic and epigenetic information from these same samples? Governments in Asia and even in western nations already use other means to conduct public health surveillance. Examples include mobile phone data, CCTV footage, facial recognition, temperature checkpoints, travel bookings, financial records, social media, and even drones.

Beyond questions about surveillance for public health, the broader issue revolves around how data from surveillance could affect individuals' opportunities and life chances. Citizens in

democracies may move closer to accepting restrictions to their mobility based on information about their infection status. If so, might businesses, employers, and other individuals evaluate and treat individuals based on their shareable personal indicators of health?

Solidarity: Will the pandemic mobilize effective responses to societal issues?

Effective responses to a crisis such as COVID-19 require national-level mobilization of economic and social resources. This, in turn, demands extraordinary levels of solidarity and coordination among government, industry, and citizens. The outcomes of such mobilization and its impact are uncertain.

Success could inspire widespread belief that focused national mobilization can address persistent complex problems. At the same time, such a belief might undermine confidence in free market solutions. This might inspire grassroots movements to sharpen demands on governments to address chronic challenges, such as inequality, reconciliation, or climate change. These groups could harness the same energy displayed during the acute crisis of COVID-19. At the same time, success against COVID-19 could encourage governments to improve how they connect with citizens.

eGovernance: Rapid prototyping phase on a large scale

Given that gatherings are seen as a risk to public health, parliaments—which convene hundreds of people in one room—have been rethinking how they function. Digital transformation of the machinery of government will be key, as will the manner in which parliamentarians interact with their constituents. New technologies may enhance government engagement with all sectors of Canadian society, from all geographical corners, including vulnerable communities. This could allow for the co-creation of critical social and economic policy and initiatives. Apart from allowing easier access to parliamentarians, for example, e-technologies could help citizens take part in public policy and democratic debate, while preserving the principle of Cabinet confidence.

The pandemic has also forced a rapid move toward online methods of decision making, a process once predicted to take years rather than days. This period may be considered a rapid prototyping phase of eGovernance on a large scale. The experiment may create demands for sustained investments in and implementation of innovative digital technologies. These would be expected to strengthen the resilience of the economy and of public service delivery.

Uninterrupted data connectivity and data sharing could help governments provide a seamless citizen experience. As more citizen services go online, cybersecurity concerns loom large.

Fiscal federalism: Federal government as funder, lender, and guarantor of last resort?

The federal government may be pressured to be the lender of last resort across multiple sectors affected by the pandemic. The energy, travel and hospitality, and service industries are particularly hard hit. Important cultural institutions such as arts venues and sports organizations are also vulnerable. International travel for business and tourism could take a long time to come back; if they do, they may be at significantly lower levels. Other sectors may never come back in the same way.

Cities may need to be bailed out, and municipalities are calling for emergency federal funding. Behaviours adopted during the crisis, e.g. virtual meetings and online grocery shopping, may continue after the pandemic ends. This would have significant negative impacts on commercial and retail spaces, urban infrastructure, and public transit—these are significant sources of revenue and investment for many cities, and support large numbers of people in the secondary economy.

Given the magnitude of the crisis, provincial governments may also be unable to absorb costs and borrowing requirements on their own. Provinces are legally responsible for their own debt. However, bond markets may assume the federal government is, in practice, a guarantor.

New demands by provinces to support industries concentrated within their borders could change the dynamics of federal equalization. This, in turn, could challenge assumptions about how fiscal federalism operates. The COVID-19 crisis could present a critical juncture for economics, policy, and fiscal federalism in Canada.

Trust in government: Will citizens continue to feel nurtured and empowered by the state?

In Canada, trust in government (as well as in medical experts and scientists) appears to be on the rise during the first months of the pandemic. Major crises require governments to take extraordinary measures with consequences for citizens' health, economic, and social situations. Open communication and successful policy responses could continue to enhance popular trust in government. However, significant failures in either area would almost certainly have the opposite effect.

At some point, temporary government support and stimulus packages will unwind. But as science clarifies the trajectory of the virus, there could be additional waves of shutdowns for public health reasons. A difficult and interrupted period of restarting the economy could create challenges for decision making, communication and trust in government.

Trust will need to be nurtured and earned. The politics of blame could degrade citizens' respect for public decision makers. Finally, prolonged insecurity might make populations more vulnerable to disinformation about the pandemic, and undermine commitment to the common good.

In the longer term, shifts in trust due to COVID-19 create critical uncertainties in several areas. These include citizens' engagement with democratic processes and institutions, their orientation toward knowledge authorities, and even their continued adherence to the social contract. These have profound consequences for both the health of democracy and social solidarity.

INTERNATIONAL GOVERNANCE

International leadership: Competitive, collaborative, or fragmented?

The rules-based international order (RBIO) and multilateral institutions were already under stress before the pandemic. Their future was highly uncertain and debatable. Would they be patched up to maintain the old order, abandoned, or adapted? Or would new but well-functioning kinds of collaborations and agreements emerge? All those options are still plausible, but the pandemic and its consequences have accelerated the debate.

Many observers note the concept of the RBIO might be shaken beyond repair because of COVID-19. After all, it did not deliver on its promise in a situation that was in everyone's interest to solve everywhere. Trust between nations and in the multilateral system has been broken amid the crisis.

As an alternative to a multilateral organization, the idea of an alliance among like-minded nations could gain traction. The patchwork responses to the pandemic will reveal differences in values between cultures and major economies. Different countries will shape their exit strategies differently, with different underlying motivators. Some will put more weight on the economic imperative. Others will emphasize the public health imperative. Still others may focus on the autonomy imperative.

Still, renewed international collaboration—even in an adapted shape—is possible. Success would depend on the presence of legitimate leadership that desires to collaborate. Such leadership emerged amid tense circumstances such as the aftermath of the Second World War and in the late 1980s between the U.S. and the former Soviet Union. Upcoming elections in key economies will provide signposts on the possibility of pragmatic collaboration.

Will the world's leadership rise to the challenge? Its decision will have profound consequences on everything from the movement of people and redesign of value chains to the potential of collective action on other global issues such as climate change.

Controlling the vaccine and/or treatment: Who will own the best vaccine or treatment, and what will they ask in return?

If an effective vaccine or treatment can be developed and manufactured at scale, control over its intellectual property and manufacturing process may temporarily grant private sector partners and the country of origin significant power. Given the cost and complexity of

vaccinating entire populations (further complicated due to physical distancing and highly protective medical environments), ownership of a suitable vaccine would grant a nation, partnership, or private firm influence over how, when, where, and to whom the vaccine is given.

Domestically, a country that successfully develops a safe and effective vaccine and/or treatment would likely administer it to its own citizens first. This would provide it with an economic advantage, as it could protect its domestic industries and value chains from further disruption and allow its citizens to travel widely for business.

In terms of geopolitical and geoeconomic relationships, access to the vaccine or treatment could be used as leverage, thus skewing international relations to the advantage of the country of origin. It could reform international organizations, broker concessions in trade agreements and security accords, or allow access to disputed assets or territory.

The longer a country's vaccine or treatment remains the safest, most effective option, the more power it would accrue as a result.

Who might ultimately produce and manufacture a suitable vaccine and/or treatment, and what norms and rules will apply to how they control and share the formula, production capabilities, and distribution? How will controlling interests seek to gain from the vaccine and/or treatment in other domains such as intellectual property? Will alternatives rapidly emerge to offset a monopoly of power that could skew geopolitical relationships and international institutions?

COVID-19 accountability: Who is held responsible, and for what?

Across the world, assigning blame for the COVID-19 pandemic continues, and it is linked to a complex web of diplomatic and economic international relations. Several initiatives in different countries are exploring how to hold China accountable for the loss of human lives and the economic fallout. Examples include the U.S.-based class action lawsuit and the associated *COVID-19 Accountability Act*, and Australia's proposed independent probe into the origins of the coronavirus pandemic. The developments and their ultimate outcomes can be defining for future trade relations, election results, and social cohesion.

The effects of the various probes and accountability measures are already emerging, as negotiations intensify among global leaders. Embassies around the world are working to solidify their host country's position. The language used in trade negotiation conversations has become increasingly hostile, as threats to terminate existing relationships and proposed sanctions are introduced to impose accountability costs.

The future of the Internet: Will misinformation and security concerns lead to a splinternet?

The international and domestic dynamics of the COVID-19 pandemic have favoured increasing national control over critical assets. Management of hospitals and health systems, control over the production of PPE and ventilators, and oversight of critical supply chains have all been features of the crisis.

The Internet is another example of increased national control. The rising importance of digital networks to education, economic activity, and, most importantly, the flow of information to citizens, are leading some countries to exert far greater control over national communication networks. As the extent of the pandemic became clear in February 2020, China's Politburo called for increased management and control over online media.¹⁰ In May 2020, the White House drafted an executive order to limit the legal protection that U.S. federal law provides social media companies, making it easier for regulators to hold platforms liable for curbing users' speech.¹¹

A step beyond new content regulations is the threat of splintering the Internet. China's Great Firewall is a combination of regulations and technical interventions that regulate traffic entering or exiting China, and has been operating in various forms since the late 1990s.¹² More recently, the Russian government has developed legal and infrastructure-level controls to directly govern data and information flows in the country.¹³

These types of national workarounds seek to add control layers on the open protocols of the global Internet. As new Internet architectures emerge to cope with the evolving security, device, and communication needs of the digital post-pandemic world, it is possible that new Internet protocols could grant more power to authoritarian states to monitor and control their citizens. For example, the current proposal by Huawei and the Chinese government for the International Telecommunication Union to develop a "New Internet Protocol"¹⁴ could accelerate the emergence of the "splinternet," which is a breakup of the global Internet into national and regional networks. Such an eventuality could introduce new frictions in the movement of data and digital services, and impact trade and the nature of the Next Digital Economy.

¹⁰ http://www.xinhuanet.com/politics/leaders/2020-02/03/c_1125527334.htm

¹¹ <https://www.wsj.com/articles/in-draft-executive-order-trump-would-look-to-limit-protections-for-social-media-companies-11590637554>

¹² <https://www.theguardian.com/technology/2015/apr/13/great-cannon-china-internet-users-weapon-cyberwar>

¹³ <https://www.wired.com/story/russia-internet-control-disconnect-censorship/>

¹⁴ <https://www.ft.com/content/c78be2cf-a1a1-40b1-8ab7-904d7095e0f2>

The breadth of policy attention: How much focus will be left for other issues?

Global attention is currently focused on managing the immediate health, social, and economic consequences of the pandemic. However, this focus may neglect other sensitive conditions that might develop into major crises, as well as the possibility that other cascading risks could emerge. Nationally, natural disasters threatening communities already affected by the COVID-19 pandemic could compound social, psychological, and physical threats in devastating ways.

**USING
FORESIGHT IN
POLICY MAKING
UNDER HIGH
UNCERTAINTY**

2. USING FORESIGHT IN POLICY MAKING UNDER HIGH UNCERTAINTY

The COVID-19 pandemic has shocked the world. The direct health consequences, cascading economic, political, and environmental impacts, as well as social effects of this disease are still unknown. As of July 2020, governments, experts, and populations are still trying to understand the virus and its trajectory, and many initiatives are under way in the hopes of discovering vaccines and treatments. Although we are making headway, uncertainty surrounds how the situation will evolve, and what it will mean to us in retrospect.

HOW CAN WE THINK ABOUT THE FUTURE?

As policy makers, we need to look at the future in a variety of ways. We ought to consider both the changing policy landscape and the impact of governments' policy decisions on the future.

What futures do we need to anticipate?

It may be tempting to imagine that the pandemic is an isolated "bump in the road," and that we will either return to the pre-COVID-19 reality or end up in an expected future—one we anticipated based on well-understood trends before the pandemic hit.

However, prudent governments do not bet everything on the chance that outcomes will turn out as expected. Instead, they prepare for a wide range of plausible scenarios to avoid finding themselves in situations of radical change that they were unprepared to manage. There are signs that indicate the future will be significantly different from the one most were anticipating pre-COVID-19. Such scenarios might require new policy tools, approaches, and ways of thinking. Although the government is capable of upscaling tools when needed, during crisis there is an increased risk of failure if policy tools and solutions need to be simultaneously invented, adapted, and scaled. This is why foresight is crucial.

Decision makers need to reflect on:

- the shifts we may experience in the medium and long term that challenge our policy assumptions and tools
- the highly disruptive policy landscapes and scenarios we may face

- the policy implications of those scenarios (i.e. challenges, bottlenecks, shortages, emerging needs and capabilities)
- whether the policy assumptions guiding the decision making are credible, need more exploration, or are vulnerable
- whether the policy toolkit is capable of addressing significantly different scenarios
- response options that could yield the desired results given the changed landscape

What future are we creating?

The government is not a passive participant in the future; its decisions shape the future.

We can consider whether to resume “business as usual,” or whether that model is unfit for purpose or may be undesirable. Do we want to transform and create a more desirable future? If so, what does that future look like?

We can also reflect on how to build a more resilient system, where the different economic, social, political, and environmental systems support each other and can withstand shocks. We should look at what a resilient system could look like, and what it would mean in terms of outcomes and trade-offs.

Decision makers ought to consider:

- The scenarios that may unfold, so we can work towards a shared vision for the future
- Which areas or priorities require development to achieve this vision
- How we can work across domains to create this vision and make choices

Below you will find foresight tools and ideas that illustrate how you can use the driving forces for your work, and apply foresight in a structured manner to your processes.

2.1 WORKING WITH SCENARIOS

Scenario thinking helps us consider alternative futures. It allows us to make clear assumptions about the future, consider disruptions, and engage in a social learning process, while avoiding groupthink and polarized or fragmented perspectives. Scenario thinking also helps us ask the right questions to prepare for a variety of futures. Scenarios are designed for a specific individual or organization and for a defined purpose.

The scenarios in this section are used for the purpose of illustration, and were developed as part of a specific collaboration. They should not be considered the official scenarios designed to address COVID-19.

Time horizon for an alternative future

Although a return to normal (either to the pre-COVID-19 reality or in a future that was anticipated before the pandemic based on known changes) is possible, it appears unlikely (see the box entitled “No quick return to normal”).

It may be prudent to plan for a future in which Canadians and their governments could experience:

- a continued emergency phase, which could persist with episodic flare-ups for two years or more;
- an extended phase of disruption, in which we experience the longer-term consequences of the pandemic, including accelerated and ongoing economic, societal, and geopolitical disruptions;
- The eventual emergence of a new “normal,” which could look quite different from the future that many might have anticipated pre-pandemic.

Thinking about the future policy landscape this way facilitates foresight, contingency planning, and vision. We can use it to ask three sets of questions, working back from the more distant future:

1. What different visions of the more distant future are plausible? Which ones should we work towards, or seek to avoid? (see the section on [Visions thinking](#))
2. What policy responses could help us achieve more desired visions of a new normal?

3. What additional demands, challenges, and opportunities may arise for governments during the initial emergency? What decisions can we make during the emergency to prepare for further disruptions?

Even if the disruption from the pandemic is limited and we experience a quick return to normal, planning for a prolonged disruption could be useful for governments to identify challenges and opportunities. Exploring the potential for continued disruption is therefore a robust approach to policy analysis and planning, irrespective of the pandemic's ultimate course.

No quick return to normal

One policy assumption might be that the worst is over, and that the virus will soon become manageable and then fully preventable; the economy will bounce back in a “V-shaped” or at least a manageable “U-shaped” recovery; life returns to its pre-pandemic state, albeit with minor changes; and we face extra public debt due to spending on temporary supports. While this scenario is possible, several reasons make it unlikely:

- As of July 2020, the development of a vaccine or treatments remains uncertain, and the successful management of the pandemic through non-pharmaceutical measures is fragile.
- Economies, societies, and the geopolitical order were already in the midst of transformation before the pandemic hit. Our response to the virus and the pandemic seems to be accelerating many of those changes, especially with respect to telework, automation, consumption patterns, geopolitical reordering, and digital social life.
- As of July 2020, we have not yet seen the full consequences of putting our economies and social customs on hold. These ramifications could snowball over the coming months, particularly if these conditions endure.

The experience of the pandemic may be changing Canadians' understanding of their social, economic, and environmental conditions. It has revealed weaknesses in many systems, such as long-term care for a growing ageing population. Inequalities that influence educational, health, and economic outcomes for citizens were exposed. Some of our major economic sectors, especially physical retail and oil and gas, face growing and possibly permanent headwinds. And systems such as childcare and early childhood education have proven to be crucial to the functioning of nearly every facet of life.

Major shifts and critical uncertainties frame plausible alternative scenarios

We can use the driving forces identified in the previous section to develop alternative scenarios that we may encounter. Below are some of the most significant uncertainties in different domains. How they play out will give rise to very different futures for which we need to be prepared.

- In the health domain, will we be able to medically control the virus? If a vaccine or treatment is developed, who will own it, how will it be accessed, and by whom?
- In the economic domain, uncertainty continues as a V-shaped recovery seems increasingly unlikely, and in the longer term supply chains could be significantly redesigned. Beyond the economic consequences of the pandemic itself, the disruptions brought on by the [Next Digital Economy](#) could likely accelerate.
- In the social and socioeconomic area, a lack of specific interventions could bring a high risk of mental health issues, increased inequalities, decreasing social cohesion, and rising generational divides.
- In the environmental space, the COVID-19 pandemic could significantly influence the way in which societies rethink their stance on the environment. Alternatively, the connection between the pandemic and the environment may go unexamined.
- In governance, many questions surround the future nature and role of governments, while pre-COVID-19 trends related to the international order seem to accelerate.

Exploring different combinations of shifts and critical uncertainties

Exploring different combinations of those shifts and critical uncertainties can help us develop a better understanding of what might happen, be better prepared, and avoid kneejerk reactions when they happen. It helps us review our planning assumptions.

Depending on your policy domain, you might explore scenarios such as:

- What if a vaccine or treatment exists to control the virus medically and the country that owns it is focused on its own wellbeing (i.e. on providing it to its citizens first, or on extracting financial gain from it)?
- What if citizens demand government investment for environmental protection that is equal to the support provided for COVID-19, at a time when economic growth is slow?
- What if jobless growth accelerates, and trust in the government erodes?

The box below contains three high-level scenarios that we explored with our Federal Foresight Practitioners Network to challenge policy assumptions. These scenarios are not designed to predict the future, but rather to stimulate thinking of what is possible. They are used here for the purpose of illustration, and were developed as part of a specific collaboration. They should not be considered the official scenarios designed to address COVID-19.

Scenarios explored with the Federal Foresight Practitioners Network

Scenario 1: A world in which public health has recovered, but the economy has not

This scenario challenges the assumption that the economy will rebound quickly once the pandemic is medically manageable.

Canada, 2023: Medically, COVID-19 is completely manageable and does not pose a major threat. Over the last few years, death rates and complications from COVID-19 were not extreme in Canada. However, while individuals who were last infected are recovering well, the economy is not. Unemployment remains high, and full economic recovery, if at all possible, may not take place until the early 2030s. Over the past three years, Canada experienced continued disruption due to COVID-19, such as flare-ups, and openings and closings within regions and across borders. This created a highly uncertain economic environment and a prolonged recession that is unequally spread across sectors. Offline retail, travel and tourism, and the commercial real estate market are experiencing unprecedented drops. Some types of local manufacturing make a minor comeback as value chains evolve to resist geopolitical shocks, but reductions in exports prevail. Investments in automation have soared in an effort to become less dependent on humans for the production

and distribution of goods and services. Lower-wage workers, vulnerable groups, women, and Indigenous peoples are disproportionately disadvantaged.

Scenario 2: A world in which an emergency state is the new normal

This scenario challenges the assumption that we will only experience one emergency at a time, and that if we decisively address the COVID-19 virus, the situation is resolved.

Canada, 2023: Canadians are reeling from multiple disruptive emergencies; the COVID-19 pandemic that remains medically unmanageable, and a series of environmental catastrophes—extensive wildfires and floods—that displaced parts of the population. Many experienced these events as traumas, leading to a “mental health pandemic.” The international scene is relatively volatile, resulting in regular shocks to trade, commodity prices, and travel. Economic recovery, although progressing overall, is geographically uneven, with sudden shocks to value chains. GDP is up, but GDW (Gross domestic wellbeing) is quickly declining. Key health indicators, including rates of chronic disease, are worsening, even among those untouched by the virus. The birth rate is declining in Canada, and this smaller cohort of children face developmental hurdles at greater rates than the pre-pandemic period. Trauma and anxiety deform interpersonal and inter-group relations, weakening the ties and bridges that support social cohesion. Front-line workers and leaders across all sectors are feeling increasingly frustrated by the gap between a constantly increasing knowledge of healthy human development and poor outcomes. Entrepreneurs and small businesses find it challenging to stay afloat in such a volatile economic environment. Stories have recently emerged about the possible existence of a coronavirus in birds that might mutate to transmit to humans, and would be much deadlier than COVID-19.

Scenario 3: A world in which social connection provides resilience through the crisis

This scenario challenges the assumption that a long pandemic and difficult economic transition drag down social life and civic institutions.

Canada, 2023: The pandemic drags on. The shared experience of vulnerability and cooperation fostered a high level of social cohesion and solidarity in Canada. Trust among Canadians and between citizens and institutions has strengthened. This helps Canadians deal with a difficult economic transition and the longer-than-expected wait for an effective vaccine or treatment.

Canadians have grown accustomed to technological innovations, such as bio-sensors, health apps, and touchless automation. They support data governance models that generate public benefit without exposing individuals to targeting or manipulation. Increased acceptance of digitization and automation is reshaping education at all levels. Firms move to a flexible model where remote work is the default. Flexible hours, along with placing wellbeing, family and children as a priority, yields higher levels of satisfaction despite some difficult adjustments.

Voluntarism has increased, and cultivating community relations plays a larger role in social life. Canadians are participating in the long and difficult work of building resilient social and economic systems that help regenerate rather than degrade ecosystems. This multi-generational collective effort towards reconciliation, healing, and ecological restoration is providing a sense of meaning that makes continuing disruptions somewhat tolerable. Canadians hope to emerge from a period of difficult transitions into new forms of economic and social prosperity that were unavailable before the pandemic.

2.2 IDENTIFYING POLICY IMPLICATIONS

Thinking through disruptive scenarios can help us identify policy implications (i.e. challenges, bottlenecks, shortages, emerging needs, and emerging capabilities) for which institutions could prepare. With a better understanding of plausible and challenging policy implications, decision makers can reflect on and test whether the policy toolkit is adequate when faced with significantly different scenarios.

Below are some possible policy considerations that could emerge in a landscape that sees continued disruptions rather than a quick rebound to “normal.” These focus on the social, economic, and governance consequences during a long period of disruption.

These implications emerged from our research.

Dealing with accelerated disruptions in the economy

The [Next Digital Economy](#) may bring challenges and opportunities sooner than expected. Prior to the pandemic, digital technologies were already combining to trigger a significant transformation of the economy. The pandemic and its implications might expedite that process.

We could see a rapid onset of technology-induced unemployment. Deployment of automation and AI may accelerate, reducing both the dependence on humans in value chains and the risks of disease transmission.

Rising acceptance of remote work will change where work is done and by whom. The pandemic inadvertently served as a testing ground for remote work, providing institutions with insight into how it could move forward (read more from our [Future of Work](#) report: [Where People Work and Earn May Not Be Where They Live and Spend](#)). If workers in Canadian firms can work effectively from home, why would these firms primarily hire domestic workers? What policies might help Canadians participate in the remote work economy, as they compete for jobs (or tasks) with qualified teleworkers in countries with much lower costs of living? What supports or protections would Canadians need if they live in Canada but work for foreign employers on platforms outside the country? How could Canadian cities and towns attract teleworkers who earn elsewhere but spend locally? What opportunities and challenges would arise if large numbers of teleworkers moved from high-cost cities to more affordable towns and rural areas? Which unintended consequences could emerge as a result of some jobs lending themselves well to remote work while others do not?

Home-based work and online retail could worsen the consequences of an economic downturn. The value of many commercial and retail spaces could drop. The accommodation, transportation, and hospitality sectors could also suffer, as they rely on business travel and international tourism. What assets, transactions, or revenue streams will retain taxable value and support public goods? What policies might allow the repurposing of commercial and retail space? Could this offer new opportunities to address homelessness and dislocation?

Canadian value chains could change if firms reshore and automate manufacturing. Fears of shutdowns, trade disruptions, and the fragility of long value chains might combine with new manufacturing technologies to bring goods production back to Canada. What policies and programs might facilitate a local and ecologically sensible manufacturing sector? Could synthetic biology and additive manufacturing offer ways to cheaply make goods while also limiting or even reversing the effects of manufacturing on local ecosystems?

The pandemic will only be over when it is over everywhere. Managing trade and travel between regions and countries with different infection rates will remain a lasting challenge. Consider the Canada-U.S. border: if the pandemic is not contained and COVID-19 remains more prevalent in the U.S., how would Canada adapt to maintain economic and social ties with them?

Some industries might never rebound during a long and turbulent disruptive period, imposing some difficult choices. Many small and medium enterprises (SME) in the tourism sector might go bankrupt long before the pandemic is under control. What bold and difficult choices might help avoid that?

In a long disruptive period, powerful firms or private institutions could seek bailouts. What funding models and under which conditions could enable economic transformation that would position Canada favourably in the future?

An extended disruption may force a reconsideration of post-WWII economic orthodoxies. How might governments respond to a change in consensus about the role of markets and economic policy? Could an accelerated digital economy cause governments to revise their assumptions—for example that the goal of monetary policy is to guard against inflation rather than deflation? What new models can be put in place to avoid consequences such as increased gender inequality and wealth gaps?

Decreased funding combined with higher risk aversion may impose further barriers for women and visible minorities seeking to create start-ups. How can policy makers work with financial institutions to reduce discriminatory practices that exclude women, newcomers, and visible minorities from accessing favourable rates and funding opportunities?

Rethinking societal priorities

Prior to the pandemic, changes in social functions—and more broadly in the social systems—were already under way. Some changes have accelerated due to COVID-19, raising questions about our [social futures](#).

Shared experience of vulnerability to disruption and appreciation of interdependence could set the backdrop for a rethinking of the social contract. There could be pressures to revisit the basic arrangement between government, individuals, firms, workers, consumers, and social groups. How Canadians and their institutions pool risk, protect the vulnerable, eliminate discriminatory practices, respond to shocks, connect across generations, and promote innovation may need to change. Sustained inequity and new sources of economic and social insecurity could also challenge the ties that previously bridged differences and bonded groups to promote cohesion and cement a new social contract.

Certain responses to the pandemic could create an even more challenging context for gender equality. How can governments address the disproportionate burden and negative impacts affecting women during economic disruptions, closures, and other health-driven responses to the pandemic? What political, economic, and social consequences might emerge from a sharp rollback of women's slow and hard-won progress on income inequality and burden of unpaid labour? Will unpaid work (such as caring for children and/or elderly parents) be recognized in a manner that allows women to maintain employment and pursue career advancements?

Access to secure digital networks and applications becomes critical. What role might secure access to digital networks play in a renewed social contract? Which new digital social goods, rights, or benefits could emerge as central elements?

The pandemic offers an opportunity to revisit our social contract on privacy and social information. What data can government collect and use to rapidly address changing social needs during pandemics? What new technologies and approaches to data governance might unlock the collective benefits of data while protecting individuals against manipulation or targeting?

Society's unhealed divisions can threaten its ability to respond in times of adversity. How might Canada continue its work on reconciliation during a prolonged emergency? How could indigenization and greater institutional acceptance of Indigenous worldviews contribute to resilience and responses to disruption?

The intergenerational social contract between younger and older generations may strain as the pandemic continues. Young Canadians' education and entry into the labour force is being disrupted by the response to a disease that significantly affects the health of older people. What might Canadian youth demand in return, for example with respect to student debt, education and early career support, and progress on their core concerns, such as climate change?

The pandemic may create new expectations about the value and dignity of work that has been classified as essential. Essential workers have carried the economy and taken on additional risk during the continuing pandemic. In the longer run, what compensation and recognition could they expect in return?

Persistent disruptions to the economy and social life, and the stress stemming from the constant threat of exposure to the virus may result in a mental health crisis. This could create pressure to provide more publicly-funded mental health support. It could also accelerate the longstanding efforts to reduce the stigma around mental health issues and seeking mental health services. Governments could also see increased calls for research funding related to mental health, as scientific discoveries in genomics, epigenetics, neuroscience, and the social determinants of health expose the link between mental and physical health.

A strong demand to review social assistance and income support may emerge. Could continued economic disruption and increased automation challenge the current logic of income support that is largely focused on insurance against breaks in employment? What other options might be considered for income supports or provision of public goods? Might income support programs be expected to assist with large economic and environmental transitions? Will newly emerging vulnerable groups financially affected by the pandemic—e.g. previously high-income contract workers and professionals in fields such as travel and hospitality—demand new forms of social supports?

The role of NGOs and the charitable sector may change due to a decrease in funding and participation rates. Although a strong civil society is crucial to community resilience during disruptions, it is itself vulnerable. Volunteering during the pandemic is riskier, especially for seniors. Charitable contributions may decrease for a long period amid financial worries. What tools might government use to support this sector, specifically smaller charities that serve marginalized communities unassisted by other organizations?

The living conditions for older Canadians may be significantly altered following the pandemic. During an extended pandemic, older Canadians may delay their retirement or rejoin the workforce to support themselves or supplement the income of their families. They may also see their investments and economic legacy decline at a time when they most need it. The state

of long-term care may cause considerable stress and suffering to sick older Canadians. The conditions for end of life—particularly in COVID-19 wards—could renew consideration of dignity in death. What visions might arise concerning the long-term care options for older Canadians? How might their interests during a long emergency—such as maintaining the value of high-priced assets—compete with the needs of younger Canadians struggling to establish themselves? Could older Canadians’ attention to their legacies drive important transformations and collective projects?

Building systemic resilience

Resilience could become a top policy concern in a period of continued disruption and attempted recoveries from shocks. Resilient systems can handle multiple disruptions. The term resilience here includes the concept of “antifragility,” which refers to how resilient systems can not only survive, but actually improve the more they are battered by disruptive change. The consequences of the pandemic have cascaded across many systems (e.g. childcare, retail, hospitals, supply chains), illustrating how their resilience is interlinked. As a consequence, the challenge for policy makers may be: how can policy makers promote the resilience of complex interlinked systems?

New skills and mechanisms may be needed to build more resilient systems. The pandemic revealed the extent of systemic interdependence between different aspects of society, and exposed how the vulnerability of one could hurt the whole system. Society will expect that systems are transformed to be more resilient against future pandemics or other major shocks. Most government institutions are organized to target their distinct powers, duties, and functions on specific objectives within their Minister’s portfolio. How could federal government institutions best pursue interlinked resilience? Which new tools, processes, or authorities could encourage portfolios to serve each other’s objectives when their responsibilities interrelate? What additional skills, educational backgrounds, and experiences could further assist the policy community with analyzing and designing resilient systems?

Society may start thinking of core systems as “investments” rather than “costs,” opening the possibility for further investments in public offerings. How can governments relate the impact of their long-term investments in core systems (such as early childhood education and development) to the resilience of the economy? Where else might strategic investments produce more long-term resilience?

With increased attention to resilience, openness to onboard Indigenous worldviews and their understanding of complex and connected systems may increase. What opportunities may exist for consultation and co-development with Indigenous partners within policy-making

processes? How could government apply Indigenous futurism when working on resilience-focused policies?

Resilience could become a major area for innovation and investment opportunities. If resilience is at a premium, there could be opportunities for states, societies, and firms to invest in technologies, applications, and business models that address risks of systemic disruption. What policies or programs could position Canadians to innovate and supply solutions for increased resilience, both domestically and abroad? Could particular areas, such as food security or bio/eco-surveillance systems, be in high demand? What opportunities might exist in turning AI towards highly complex projects of building interlinked resilient systems? Where might this work dovetail with innovation for climate change solutions?

Social connections, which are key to social resilience, might significantly deteriorate if the pandemic lasts. As government rolls out digital services and supports adaptations to physical distancing, what will be the consequences of its programs and policies for social connections? How could we watch for unintended causes of eroding social resilience, of isolation, as well as spot business models and behaviours that degrade connections, undermine trust, and damage the social environment? During and after disruptions, what policies, programs, and communications might protect and help regenerate damaged social connections?

Protectionist policies around the world and partial decoupling of major economies could test the resilience of Canadian systems. What are the industrial, agricultural, cultural, and infrastructure capacities and legal frameworks (in both physical and digital domains) that may be necessary to insure against and respond to future shocks to global supply chains?

During [the convergence of biological and digital technologies](#), **bio-resilience might be a new specific focus of policy.** For example, what could this naturally evolved pandemic teach us about the large-scale risks and opportunities of engineered biological agents?

Biological and social science fields are quickly developing, allowing for increased understanding of how adverse experiences generate persistent trauma to create [biologically measurable effects across generations](#). The findings may allow us to develop new thinking about the interventions that might increase Canadians' ability to flourish through adversity, and limit the effects of trauma in periods of stressful economic, health, and social disruptions.

Changing federalism and federal roles

Debates about the state's roles in the economy and the model of fiscal federalism have surfaced during the pandemic, and could persist in a continued state of economic disruptions.

In a long disruption, society might expect the federal government to be the de facto guarantor of provincial debt. How would acknowledgment of this role change federal-provincial-territorial relationships? What conditions (if any) might apply for the federal government to step in and provide that guarantee?

There may be an expectation for the federal government to continue covering many uninsured social and business risks and losses. What consequences might there be for federalism if the government starts providing support to struggling businesses and households that fall outside of existing employment insurance and economic development programs?

Municipalities could face a “perfect storm,” increasing demands on both provincial and federal governments. During the pandemic and in an extended period of disruptions, municipalities could face rising demands for services despite lower revenues. In a dire case, they might partially abandon municipal assets such as public transportation, as fewer workers commute to work and on-demand services adapt to serve occasional mobility needs. Restrictions on conferences, events, and tourism may further limit potential revenues. What additional demands on the federal government might emerge to support municipalities struggling with revenues? What new partnerships or opportunities could arise?

Sense-making in an emergency

Receiving, processing, and acting upon pandemic-related information depends on the outcome of the battle between science-based and other sense-making models. The pandemic has brought to light the divide in current sense-making models. Over the years, the trend was to move away from science-based sense-making, where misinformation, a fractured media landscape, and an erosion of traditional knowledge hierarchies played out. The pandemic placed science back on the map, as some governments successfully put forward their medical experts and scientists to communicate about the continuously evolving understanding of the virus to mobilize collective action. Which sense-making model will become prevalent? How would governments adapt their communication approaches in light of the dominant sense-making model? How will government nurture trust?

A vaccination campaign could be an era-defining test for science-based sense-making. “Anti-vax” misinformation has gained traction through social networks. What steps can government take, months before a vaccine is ready, to build consensus and protect the sense-making environment from disinformation, paranoia, and polarization?

Cultural creation could dwindle at a time when it is necessary to help Canadians make sense of change. Live performances and art events might continue to be cancelled or transformed to adapt to changing public health requirements. What supports and policies might assist Canadian cultural industries and creators to produce work that helps make sense of the disruptions that have affected us?

2.3 TESTING ASSUMPTIONS

Reflecting on what futures might emerge helps test the assumptions that decision makers—either consciously or unconsciously—hold and use to guide policy decisions in relation to the COVID-19 pandemic.

It is useful to make them explicit and assess them. Assumptions can be considered credible, uncertain, or vulnerable:

- Credible assumptions are robust in all futures. They can be used to guide policy and decision making.
- Uncertain assumptions—need more research, debate, and testing. They are unpredictable. The outcomes from using them could lead to surprises, contradictions, disruptions, or impacts that we have not fully explored.
- Vulnerable assumptions are inaccurate, out of date, or wrong. They should not guide policy and decisions. They should be discarded or revised.

Conversations can explore:

If the assumption does not hold, how might the future be different? What surprises or policy challenges could arise in this future? How can the assumption be restated to make it more robust and useful in planning?

Below are some major uncertain and vulnerable assumptions that need to be examined:

- Incremental change can deliver fair, equitable, and affordable social programs post-pandemic
- Economic growth and employment levels will eventually return to pre-pandemic levels
- Government can rely on traditional revenue sources such as oil / natural resources
- Public health concerns can be balanced with economic considerations
- Traditional stimulus measures will be effective in increasing demand
- Society will ensure that women will not be disadvantaged economically and socially (i.e. in terms of childcare responsibility, unpaid work to care for elders and children, paid/unpaid leave, and working conditions)

- The social safety net is strong enough overall to meet expectations or emerging circumstances
- The same policy tools and strategies that were used to get us out of past recessions will be effective in ending this recession

2.4 VISIONS THINKING

Visions—that is, desired futures—come in different forms, are best co-developed with stakeholders, and must be useful to decision makers. As such, there can be more than just one set of visions. We at Policy Horizons support the Government in visioning exercises, but it is not our role to set the vision.

In our internal work, and throughout our engagements with federal public servants, we found value in reflecting on how our collective decisions—in the emergency phase and the extended phase of disruption—can combine and coalesce into long-term outcomes. Creating simplified pictures of the “new normal” that could arise can help guide our decisions towards futures we find more desirable.

Below is a set of possible futures that may arise, differentiated by overall zeitgeists. The spirit of the time often sets the tone for the political space that frame policies and decisions. It determines what is possible. At the same time, the actions and decisions taken by different stakeholders in a system—e.g. individuals, civil society, businesses, entrepreneurs, governments—influence which zeitgeist prevails over time.

These zeitgeist scenarios help us reflect on the long-term consequences of our decisions in highly uncertain and disruptive times, on the “new normal” that might emerge in Canada over the coming years, and on our societies’ preferred future or the vision we want to achieve.

What zeitgeist will we encounter and contribute to?

Given the objective of our COVID-19 foresight work, we situate the zeitgeist scenarios below in the context of continued disruption related to the pandemic—e.g. flare-ups, openings and closings within regions and across borders, and a highly uncertain economic environment.

	Collective Paralysis	Social Darwinism	Empathic Growth
Zeitgeist	Despair	Competitiveness	Collectivism
Mindsets and attitudes	Short-termism No risk taking/no games Focus on getting by	Individualistic/in-group Zero-sum game Focus on economics	Empathy and enlightened self-interest Positive-sum games

	Collective Paralysis	Social Darwinism	Empathic Growth
			Focus on the collective, the holistic
What we could see in such a world	<p>Limited business investment</p> <p>Limited entrepreneurial efforts</p> <p>Reduced education and retraining as individuals avoid taking on debt burdens that may not pay off</p> <p>Poor mental health</p> <p>Regression for vulnerable groups, especially women and minorities</p>	<p>Consolidation of economic power</p> <p>Jobless growth</p> <p>High unemployment (high automation), and mainly precarious work arrangements and wages</p> <p>Increased inequality, large wealth gaps</p> <p>Gated communities</p> <p>High barriers to entry for minorities and women</p>	<p>More holistic appreciation of life, including the recognition of collective vulnerability, unpaid work, essential but traditionally undervalued participants of society, and the biological environment</p> <p>Reduced consumerism</p> <p>Willingness to trade in privileges for the collective good</p>
Possible implications	<p>Public trust in governments decreases</p> <p>High demand for economic and social support from government</p> <p>Limited tax revenues, e.g. due to less growth</p> <p>Gender-based violence</p>	<p>Decreasing national unity/social cohesion</p> <p>Social contract becomes increasingly fragile</p> <p>Tax revenues are limited, e.g. due to reduced income taxes and tax optimization schemes</p> <p>Increasing risk of social unrest</p>	<p>Domains such as education and health are considered investments, not costs</p> <p>Greater acceptance for paying taxes</p> <p>Political space for significant transformation in areas such as environmental change and income inequality</p>

Examples of using zeitgeist thinking in decision making

Out-of-province healthcare costs or repatriation expenses arising from COVID-19 infection

A significant number of retired Canadians spend winter in the southern U.S. and Mexico, while other Canadians spend shorter vacation times in these locations (e.g. March Break). Based on current U.S. trends, some of these destination states could be “open” even though COVID-19 transmission is not contained, especially given the significant impact of travel on local economies. Government and social responses to Canadians becoming ill while abroad could vary under the following three scenarios:

In the Collective Paralysis zeitgeist, a lack of consistent approach and guidance could leave it up to Canadians to decide whether to risk travelling to the U.S. and face uncertainty about health coverage while abroad. Government responses could be reactive and uneven.

In the Social Darwinism zeitgeist, there may be strong divides between age cohorts, with youth and seniors each feeling that the other willingly engages in risky behaviour that leads to avoidable health care costs. There may be pressure from people to provide clear direction that Canadians who willingly travel to known high-risk areas for COVID-19 infection need to cover their own health care costs while out of country, and may face a surcharge for isolation care if they require hospitalization upon their return to Canada. Alternatively, a particularly vocal cohort could successfully lobby for coverage despite going to locations with a higher risk of infection.

In the Empathic Growth scenario, there may be wide consensus on a managed risk approach. For example, travellers could be expected to take steps to limit exposure to COVID-19 while abroad, and have a contingency plan enabling self-isolation either on site or upon return to Canada if they fall ill. Travellers could maintain access to their provincial or federal telehealth and advisory services, potentially reducing the need for and cost of visits to foreign medical facilities. This could include online health data tracking to signal infection, helping to manage surge capabilities within the health care system in case of a spike in infections as Canadians return.

Collection and access to data

Around the world, governments are implementing surveillance measures such as contact tracing to mitigate further waves of COVID-19.

In the Collective Paralysis zeitgeist, data collection may be uneven and/or inconsistent across populations or regions, given the lack of consensus on what data is needed, who could collect it, and how. A wide range of actors (corporations, governments, individuals) could collect it, with little connection or interoperability of databases. Uptake for voluntary data provision may be uneven, without collective understanding of who owns it, who can use it, what benefits come from its use, and who gains from them. In such a world, governments at all levels could struggle to extract insights from the data to address the pandemic.

In the Social Darwinism zeitgeist, different actors could collect and exploit data for their own ends. Data collection might become mandatory for securing employment, or accessing private facilities such as restaurants. This would give rise to mega firms in this space, who in turn can make the data private.

In the Empathic Growth scenario, a social contract could emerge in which citizens are willing to provide personal data to obtain a collective societal benefit.

ANNEX 1: EXTERNAL STAKEHOLDERS AND EXPERTS

(Updated July 24, 2020)

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ANNEX 2: SUGGESTED READING LIST

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