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COVID-19 Reinventing our Governance and Operating Models The Turning Point for Canada and Quebec?

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RB

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Foreword and Acknowledgements

Although the content of the document focuses on the Government of Canada, the issues identified are relevant to Quebec since its government has implemented policies that complement those of the federal government, hence the title. These policies are the subject of regular analyses and contributions, from CIRANO.

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Abstract

We are in the early stages of a cascading series of crises, with repercussions around the world. The COVID-19 pandemic is not only a global medical and economic emergency. It is perhaps a critical starting point for the current global system of political and economic cooperation. Major crises are usually trend accelerators, and this one will be no exception.

The magnitude of this crisis cannot be overestimated in the Canadian context. It is an urgent wake-up call. The severity of this pandemic forces us not only to adapt, but also to reinvent the way our institutions function. It also compels us to adopt a new way of thinking and managing public and private organizations, as well as our ways of working together. We cannot rule out the likelihood of an economic depression. In such circumstances, it is prudent to prepare Canada for a fundamental and lasting disruption.

In this new context, Governments in Canada need to reinvent their governance and operating models by instituting agility and become instruments of adaptation just as they are the architects and implementers of public policies and programs. The initiatives and measures required to reset the Canadian economy will be more important than the coronavirus crisis itself: they will determine the prosperity and quality of life of future generations. **Innovation must be the key to managing the current health crisis and adapting to the "new normal"**.

To be effective, Canada's response cannot be fragmented. It must be integrated and coherent, it must also be agile and focused on results.

The roadmap recommended by the [Economic Strategy Tables](#) in 2018 and the policy instruments deployed since, are still valid. However, they must be adapted to the circumstances and the urgency to act and to produce results commensurate with this major crisis and its considerable impact on the Canadian economy. The leadership role to be assumed by public authorities is fundamental: public expectations in this regard are very high, as illustrated by [Edelman's Spring Update: Trust and the COVID-19 Pandemic in Canada](#).

The courses of action proposed in this report are in line with the initiatives taken and the investments identified. They are not a defence of the status quo. They are starting point for joint public-private management according to a new agile model of collaboration focused on implementing the solutions and exceptional effort required to create the new innovative and resilient society and economy to which we all aspire. As such, the recommendation of the [Health Economic Strategy Table](#) to create a national digital health strategy with an interoperable digital health platform should be implemented with the highest priority.

Canada has fallen behind in the deployment of data and augmented intelligence strategies within the federal government and most other jurisdictions in the country. In this regard, the lack of an integrated digital national strategy is the missing transformative link in the Government of Canada's chain of policy instruments.

The roadmap, as outlined in this report, sketches a path towards the post-COVID-19 "new normal". The national recovery effort through innovation will not achieve its full impact without accelerating and deepening the implementation of the Canadian Free Trade Agreement. The necessary federal-provincial undertaking to complete the creation of a single market in Canada should be supported by the joint priority implementation of the announced strategies to modernize supply chains infrastructure and the national transportation network. The proposed taskforce on the domestic market should work collaboratively with strategic taskforce on international trade.

The proposed model of governance and coordination of the strategic taskforces does not call into question the responsibilities of the different jurisdictions or the autonomy of the different stakeholders in managing the crisis. Its sole objective is to promote joint, effective public/private, and inclusive management of the development and implementation of the recovery plan, through the five cross-cutting strategic taskforces proposed in this report.

INTRODUCTION

We had been warned more than once! The situation is serious: the state of critical health emergency is a challenge for all of us. Calls for mobilization of all players in society, industry and research are becoming more and more urgent. Uncertainty for the next 18 months is at the highest level.

The world must expect a recession such as it has not seen in peacetime for nearly a century. In its outlook for the world economy released on Tuesday, April 14, the International Monetary Fund (IMF) predicts a 3% contraction in global growth in 2020, if the COVID-19 pandemic subsides in the second half of this year. The possibility of an even sharper drop in 2021 cannot be ruled out.

The economic consequences of the "Great lockdown" (IMF) will spare no country. This is the case for Canada, which entered this crisis with poor fundamentals (EDC).

The economic consequences of the "Great lockdown", as the IMF now calls it, in reference to the Great Economic Depression of 1929, will spare no country¹. This is the case of Canada, which entered this crisis with "*poor fundamentals*":

« *Consumer savings were low, and debt-to-income spiked to an all-time-high 180%, helping to fund a cross-country housing bubble. Investment and trade were faltering, related to uncertainty in future global trade rules, the U.S.-China trade dispute and Brexit. Our higher trade-dependence made us especially vulnerable to the virus-related stoppage of large portions of international trade. And the ravages inflicted on the oil industry have devastated a key Canadian GDP machine.*²

Should we consider a recovery plan in anticipation of a rebound by late 2020/early 2021 or prepare a "Marshall Plan" to deal with a long period of "rebuilding"? Indicators measuring global economic uncertainty are reaching unprecedented levels. We must prepare for the worst and hope for the best! The fight has only just begun.

This synthesis seeks to contribute to the consideration of management options for the post COVID-19 recovery plan pandemic and the major public policy issues facing Canada and Quebec.

Were we sufficiently prepared? What is the nature and scope of this dual health and socio-economic crisis? What will be its impacts? What are the necessary public policy responses? This paper addresses these questions in four parts: the nature of the crisis; the need to reinvent our governance and operational models; the foundations of the recovery plan through innovation; and the five cross-sectoral strategic taskforces proposed within a new governance and operational framework.

¹ World Economic Outlook, IMF, April 14, 2020

² Global Economic Prospects: The Unfathomable Abyss? EDC, April 2020

As we reflect on the implications of this pandemic for all levels of society, the Burgundy report, " COVID-19 Economic Policy Options for Managing and Recovering from the Crisis in Quebec and Canada ", by Henri-Paul Rousseau, recently published by CIRANO³, offers a timely contribution to this consideration. This is also the case with the report published by the Public Policy Forum proposing a challenge-based industrial strategy for Canada⁴.

The mobilization of CIRANO's network of researchers is underway. It is responding to calls from several organizations to help the Government of Quebec in its immediate decision-making, particularly with respect to public health issues. This mobilization must continue and expand, given the many complex and critical challenges facing us. These initiatives are part of an impressive worldwide movement to share data, analyses, and knowledge in real time to defeat the coronavirus. They will contribute to more effective management of strained health systems and the considerable socio-economic challenges that arise from this crisis, while reducing the risk of economic depression. They all call for national and international cooperation that is commensurate with the major global challenge facing all of us.

³ Henri-Paul Rousseau, COVID-19 - Economic Policy Ideas for Managing and Exiting the Crisis for Quebec and Canada, Burgundy Report, CIRANO, March 2020

⁴ New North Star II A Challenge-Driven Industrial Strategy for the Age of Intangibles

Nature of the crisis and implications

The speed and extent of the spread of COVID-19 and the magnitude of its social and economic impact are causing an enormous and profoundly transformative shock. The crisis we are facing is a game changer for societies, economies, institutions, as well as for governance and operating models of public and private organizations. The intensity of the disruption will depend largely on the duration of the pandemic and the containment measures put in place. At this stage in the spread of the virus, it is premature to set a timeline in the absence of treatment and/or vaccine.

The COVID-19 pandemic is an urgent wake-up call.

What will be the economic consequences of the pandemic? What are the economic costs and benefits of non-pharmaceutical interventions such as containment measures, social distancing, and almost complete paralysis of economic activity? No precise and verifiable answer can be given at this stage of the spread of COVID-19.

The draft version of a joint study dated April 2 by analysts from the Federal Reserve Board, Federal Reserve Bank of New York, MIT Sloan School of Management highlights some interesting elements of responses. This study focuses on the 1918 Spanish flu pandemic and examines the geographical variation in mortality during this historical period.

« *The most exposed areas are experiencing a marked and persistent decline in economic activity. Estimates indicate that the pandemic has reduced manufacturing output by 18%. The downturn is driven by both supply and demand-side channels. Cities that intervened earlier and more aggressively grew faster after the pandemic ended. The results of this preliminary study indicate that these non-pharmaceutical interventions not only reduce mortality, but also mitigate the adverse economic consequences of a pandemic.*⁵

The management of the public health emergency must take absolute precedence for humanitarian reasons; it is also an essential prerequisite for a faster and more sustainable economic recovery.

The COVID-19 pandemic is not only a global medical and economic emergency. It is perhaps a critical starting point for the current global system of political and economic cooperation.

The magnitude of this crisis cannot be overestimated in the Canadian context. It is an urgent wake-up call and must put an end to the prevailing complacency that was clearly identified, particularly in the consultations that led to the launch of the national innovation and skills strategy and complementary policies in Quebec and other provinces.

⁵ S. Correia, S. Luck, [How can we save lives and the economy? Lessons from the Spanish Flu pandemic](#), 2 April 2020

According to Branko Milanovic of the London School of Economics⁶:

« As of March 2020, the entire world is affected by an evil with which it is incapable of dealing effectively and regarding whose duration no one can make any serious predictions. The economic repercussions of the novel coronavirus pandemic must not be understood as an ordinary problem that macroeconomics can solve or alleviate. Rather, the world could be witnessing a fundamental shift in the very nature of the global economy. The immediate crisis is one of both supply and demand...

The world faces the prospect of a profound shift: a return to natural—which is to say, self sufficient— economy. That shift is the very opposite of globalization. While globalization entails a division of labor among disparate economies, a return to natural economy means that nations would move toward self-sufficiency... That movement is not inevitable. If national governments can control or overcome the current crisis within the next six months or a year, the world would likely return to the path of globalization, even if some of the assumptions that undergirded it (for example, very taut production chains with just-in-time deliveries) might have to be revised.

This perspective is shared by [Gideon Lichfield, Editor-in-Chief of the MIT Technology Review](#):

To stop coronavirus, we will need to radically change almost everything we do: how we work, exercise, socialize, shop,

We are probably only in the early stages of a cascading series of crises, with repercussions around the world.

« *manage our health, educate our kids, take care of family members. We all want things to go back to normal quickly. But what most of us have probably not yet realized—yet will soon—is that things won't go back to normal after a few weeks, or even a few months. Some things never will.*⁷

For his part, Laurence D. Fink, President and CEO of BlackRock, points out in his [letter to shareholders](#) dated March 29, 2020:

« *Since January, the coronavirus has overtaken our lives and transformed our world, presenting an unprecedented medical, economic, and human challenge. The implications of the coronavirus outbreak for every nation and for our clients, employees and shareholders are profound, and they will reverberate for years to come*⁸.

As brutal as the initial shock caused by the COVID-19 pandemic may be at the moment, we are probably only in the early stages of a series of cascading crises, reverberating around the world according to some observers, including Fared Zacheria. We are still a long way from the end of the crisis, and many questions remain open - about how India and Russia will cope, for example, or about the future scale of the pandemic in sub-Saharan Africa, which may be more resilient than some predictions suggest if geographical and climatic conditions matter in the spread of the coronavirus.

⁶ **Foreign Affairs March 19,2020:** The real pandemic danger is social collapse; as the global economy comes apart, societies may, too

⁷ [G. Lichfield, We're not going back to normal, MIT Technology Review, 17 mars 2020](#)

⁸ [Larry Fink's Chairman's Letter to Shareholders, BlackRock, 29 mars 2020](#)

« The world has entered this pandemic with two challenges. It is awash in debt — government and private. With a total global gross domestic product of *\$90 trillion*, public and private debt add up to *\$260 trillion*. The world's two leading economies, the United States and China, have debt-to-GDP ratios of 210 percent and 310 percent, respectively. This would be more manageable if not for the second challenge. This crisis is occurring at a time when global cooperation has collapsed and the traditional leader and organizer of such efforts, the United States, has abandoned that role entirely.⁹

The COVID-19 pandemic highlighted serious gaps in preparedness in several countries, including our own, such as: inadequate strategic stockpiles; deficient supply chains for essential commodities; inflexible regulatory processes; overlapping jurisdictions; weaknesses in data access and sharing; lack of digital tools available to public authorities; fragile performance of our innovation ecosystems and strained capacity to deliver public services.

Several of these barriers had already been identified in Canada by the economic strategy tables and were the subject of specific recommendations (see section 3.1.2.). These recognized weaknesses in our innovation performance hinder effective management of the health crisis.

Canada is ninth out of eleven countries in the 2017 Commonwealth Fund's ranking of health system performance.

« Canada faces significant challenges in implementing and using digital health systems. Variations in the implementation of digital standards, inconsistent interpretation and application of privacy frameworks and legislation, and the lack of a modern data governance framework across siloed systems pose significant barriers to unlocking and leveraging data held in jurisdictional repositories and health delivery organizations. As a result, the health system remains largely paper-based, with doctors' offices relying on the fax machine for information sharing.

*While Canada has invested in infrastructure and developed some electronic health-record systems, three elements are still missing: an interoperable set of systems, a harmonized data and privacy framework, and a "single" accessible electronic record for every Canadian patient. A 2016 Commonwealth Fund study found that not only is Canada lagging behind its peers in the adoption of digital tools but that there is considerable variation across the provinces and territories.*¹⁰

The crisis and its response are accelerating three trends: the adoption of new technologies, the inevitable retreat of free-wheeling global supply chains, and the worrying rise of well-connected oligopolies.¹¹

This acceleration is evident in the growing importance of intangibles: Statistics Canada estimates that by 2018, the net value of data, databases and data science assets was already equal to about half the value of all machinery and equipment in Canada.¹²

The prevalence of intangibles continues to increase as is the case for international trade, which is already marked by major structural transformations: a decrease in the trade intensity of goods; growth in trade in services; a greater intensity of knowledge and innovation (intangibles); growth in intra-regional trade; and a decrease in labour-cost arbitrage.¹³

⁹ F. Zakaria, This is just the first in a series of cascading crises, *The Washington Post*, 2 April 2020

¹⁰ Report from Canada's Economic Strategy Tables: Health and Biosciences

¹¹ *The Economist*, April 8, 2020

¹² A New North Star II - A Challenging Industrial Strategy for Canada, Public Policy Forum, April 28, 2020

¹³ S. Lund, J. Manyika, J. Woetzel, J. Bughin, M. Krishnan, J. Seong, M. Muir, *Globalization in transition: the future of trade and value chains*, McKinsey & Company, 16 January 2019

The new distancing imperative dictated by COVID-19 reinforces these trends for the long term and imposes new public policies in Canada. This will not be the last public health emergency to threaten Canada and the world.

The gradual phase of fragile deconfinement will be followed by a long period of distancing in all areas of social and economic activity.

This new situation is leading to the emergence of new operating models based on digital technology. We must act now and responsibly accelerate this necessary transformation.

Annex I provides more details in support of this synthesis on the context of this crisis: its early warnings; our state of preparedness; the necessary audit and lessons to be drawn from the management of the crisis; its international dimensions and anticipated implications.

Reinventing our governance and operating models

The seriousness of this crisis forces us not only to adapt, but also to reinvent the way our institutions function. It also compels us to adopt a new conception of how we think about and manage public and private organizations and how we collaborate. The status quo and its complacency are now unsustainable.

« **The culture has to change!** *The government is at a crossroads. The government has a choice. It can either perpetuate the current culture and its problems—including the incomprehensible failures—or it can change that culture and reap the benefits of programs that work for people. My short description is that the culture has created an obedient public service that fears mistakes and risk. Its ability to convey hard truths has eroded, as has the willingness of senior levels—including ministers—to hear hard truths. This culture causes the incomprehensible failures it is trying to avoid. In this culture, it is often better for a public servant to do nothing than to act and then fail. However, if the public servant cannot avoid acting, then he or she tries to find a plausible way to disclaim responsibility for mistakes. Policies are applied as cover to avoid blame. There is a reverence for checking boxes: If all the policies and procedures were followed—if all the boxes were checked—then the flaw must be in the system.* Michael Ferguson, Auditor General of Canada ¹⁴

This quote does not date from the current pandemic; it was taken from one of the last statements made by the Auditor General of Canada in the spring of 2018 when he released his semi-annual report. It is even more relevant in now. Resolving this systemic issue is central to the effectiveness of Canada's response to the major crisis we are facing.

In democratic systems the "sovereign" nature and mission of public authorities is fundamentally different from that of private companies.

Elected governments are accountable to parliaments for the sound and effective execution of their public mission to promote internal and external security and the common good of the people. The exercise of this mission is both the long and short term for the direct "benefit" of their "shareholders/citizens". These may also be clients/users of services/programmes and/or suppliers of government goods or services. The modern and responsible exercise of this mandate by public authorities share a common requirement with the private sector mission:

- Implement evidence-based decisions
- Optimize the effectiveness of the actions undertaken to achieve the desired results.

¹⁴ Office of the Auditor General of Canada, Spring 2018-Reports of the Auditor General of Canada to the Parliament of Canada, Message from the Auditor General of Canada

The functioning of public authorities in all democratic systems is based on fundamental principles of ministerial responsibility, accountability of the executive to parliament and transparency. These principles are exercised within a binding legislative framework and rigorous control systems.

Governments in Canada need to reinvent their governance and operating models by instituting agility and become adaptive instruments as well as architects and implementers of public policy and programs.

*"Governments can and must become as nimble as startups!"*¹⁵ This necessary culture change in the federal public service is recognized and several initiatives have already been initiated¹⁶ under the leadership of Michael Wernick, the former Clerk of the Privy Council and Secretary to the Cabinet. Since his departure last year, the transformation process appears to have lost momentum and is lagging.

Crisis management requires an acceleration of this transformation process, first and foremost in our public health system, but also of our innovation ecosystems in Canada. This urgent requirement is the common thread running through the national innovation strategy which seeks to create a culture of innovation, defined as a mindset that welcomes change creatively and sees it as an opportunity, not a problem.

While this strategy recognizes that governments alone will not be able to create this culture of innovation, it must be acknowledged that governments cannot shirk the critical role they must be able to play because of their unique leverage within society and the economy. The leadership role of public authorities is fundamental in the management of the major crisis we are going through. Expectations in this regard are very high, as evidenced by the report on Canadians' level of public trust during COVID-19¹⁷ released by Edelman on the occasion of a panel discussion last May 12.¹⁸

The pandemic dramatically highlights the cumbersome administrative heaviness of our health systems and the systemic weaknesses in supply chains for essential commodities, but also the limitations of the hierarchical and highly centralized model of governance. The Economic Strategy Tables on Health and Digital Industries identified several of these hurdles in 2018 and made recommendations to which the crisis gives critical urgency (see Table 3 on page 18).

A recent analysis by McKinsey & Company puts forward an agile organization model that can be summarized as follows:

- ◀ • *The dominant "traditional" organization (designed primarily for stability) is a static, siloed, structural hierarchy – goals and decisions rights flow down the hierarchy, with the most powerful governance bodies at the top (i.e., the top team). It operates through linear planning and control in order to capture value for shareholders. The skeletal structure is strong, but often rigid and slow moving.*
- *An agile organization (designed for both stability and dynamism) is a network of teams within a people-centered culture that operates in rapid learning and fast decision cycles which are enabled by technology, and that is guided by a powerful common purpose to co-create value for all stakeholders. Such an agile operating model has the ability to quickly and efficiently reconfigure strategy, structure, processes, people, and technology toward value-creating and value-protecting opportunities.*

¹⁵ M. Zuazua, R. Lohmeyer, Governments must become as agile as startups. Here's what they need to do, World Economic Forum, 21 January 2019

¹⁶ See 3.1.1. Some innovation policy instruments

¹⁷ Edelman Trust Barometer 2020

¹⁸ View the Edelman Report presentation and discussion panel

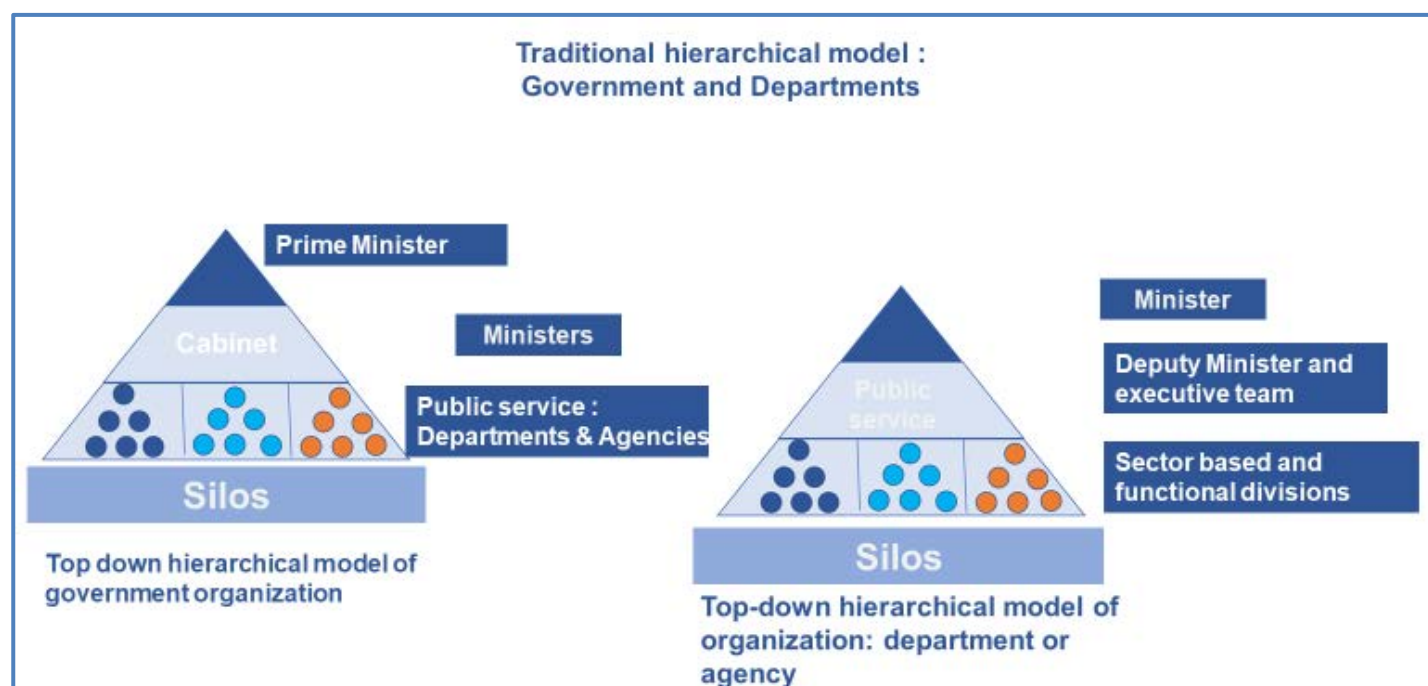
An agile organization thus adds velocity and adaptability to stability, creating a critical source of competitive advantage in volatile, uncertain, complex, and ambiguous (VUCA) conditions¹⁹.

The adoption of such an agile organizational model must be compatible with the fundamental principles of parliamentary democracy, such as ministerial responsibility, accountability, and sound management of financial and human resources.

Such a conceptual model promotes the ability to adopt and implement citizens/service users' centric strategies, structures, processes, people, and technologies through, among other things, simplified and targeted interactions quickly and effectively. It values collaboration, teamwork, and innovative organizational management.

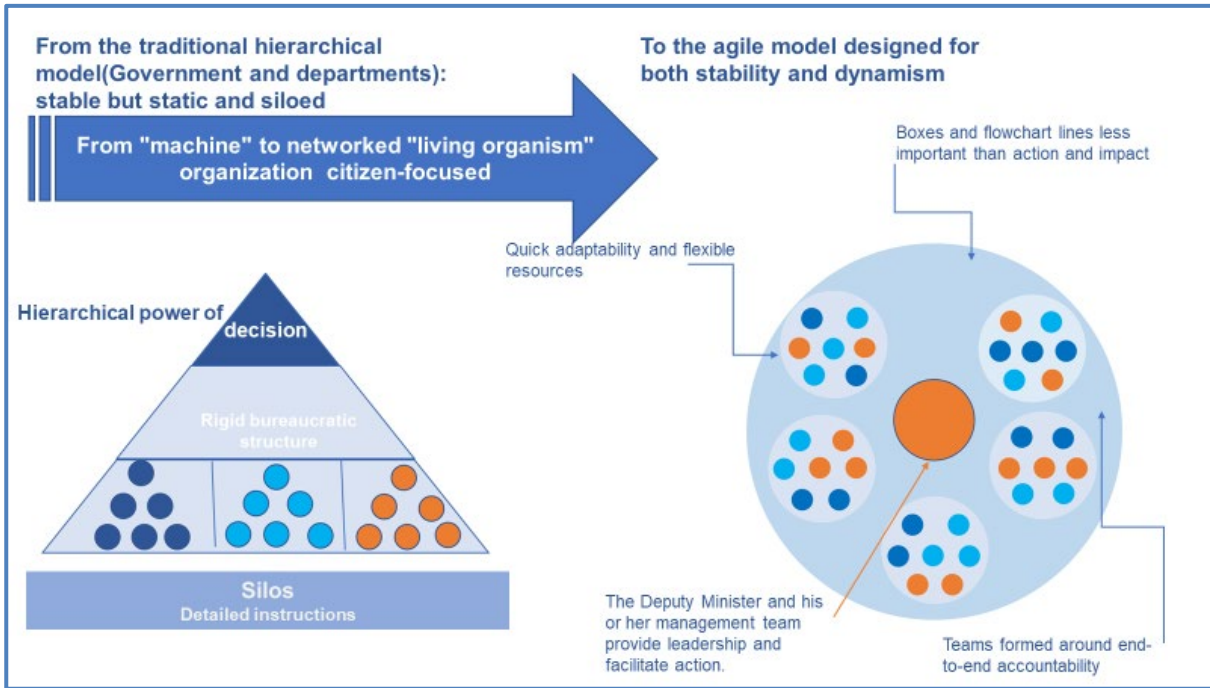
This heavy trend in innovation based management is accelerated by the COVID-19 crisis and requires us to transform our current governance and operating models towards an agile organizational model such as the one illustrated in the McKinsey & Company article referenced in this document and adapted for this synthesis in the following two graphs and table:

Graph 1: Traditional Hierarchical Organizational Model: Government and Departments



¹⁹ W. Aghina, K. Ahlback, A. De Smet, G. Lackey, M. Lurie, M. Murarka, C. Handscomb, The five trademarks of agile organizations, McKinsey & Company, 22 January 2018. See also: G. D'Auria, A. De Smet, Leadership in a crisis: Responding to the coronavirus outbreak and future challenges, McKinsey & Company, 16 march 2020

Graph 2: Agile organization model



The main characteristics of agile organization models according to this McKinsey & Company analysis can be grouped into five categories of management practices to be implemented; they are directly relevant to the public service and are summarized in this table:

Table 1: Five characteristics of the agile organization model (adapted from McKinsey & Company)

STRATEGY	NORTH STAR VISION EMBODIED ACROSS THE ORGANIZATION	<ul style="list-style-type: none"> • Shared purpose and vision • Detecting and seizing opportunities • Flexible resource allocation • Workable strategic directions
STRUCTURE	NETWORKS OF EMPOWERED AND MULTIDISCIPLINARY TEAMS	<ul style="list-style-type: none"> • Transparent and flat structure • Clear responsibilities and accountability • Pragmatic and committed governance • Robust Communities of practice • Active partnerships within ecosystems • Open physical and virtual environment • Fit-for-purpose accountable cells
PROCESS	RAPID LEARNING AND DECISION CYCLES	<ul style="list-style-type: none"> • Rapid iteration and experimentation • Standardized working methods • Information transparency • Continuing learning • Action-oriented decision-making • Results-based performance
HUMAN RESOURCES	DYNAMIC PEOPLE MODEL THAT IGNITES PASSION	<ul style="list-style-type: none"> • Cohesive community • Leadership of sharing and service • Entrepreneurial will (to accept risks) • Role mobility
TECHNOLOGY	NEXT GENERATION ENABLING TECHNOLOGY	<ul style="list-style-type: none"> • Scalable technology architecture, systems and tools • Next-generation technology development and delivery practices: citizens/clients centric

The governance and coordination framework proposed in this document is based on this conceptual model of organization and collaboration between various teams (from the public and private sectors) for the implementation of the proposed recovery plan.

The policies and taskforces that will be needed to reset the Canadian economy will be more important than the health crisis itself.

The federal government is preparing a stimulus package to reset the Canadian economy once the lockdown period is lifted. Its size will depend on the extent of the economic damage resulting from COVID-19, which is unknown at this time. One of the current objectives of this plan is to accelerate the disbursement of more than \$180 billion in infrastructure spending that has already been approved up to 2028 but is not substantively committed.

Consultations taking place in Ottawa seem to focus on the traditional and pragmatic approach of *shovel ready* infrastructure projects. This approach characterized spending program under the Harper government's "Economic Action Plan" following the 2008-2009 financial crisis.

This plan tabled by the Minister of Finance in the January 2009 budget, favoured smaller projects that can be approved quickly, create immediate jobs (and increase the local political visibility of the governing party!).²⁰

If this was to be the case now and if the government was to perpetuate such a traditional approach in this period of profound transformation, it would not have learned from the nature of the transformative shock that is shaking the world and Canada, and from the recent consultations and the broad consensus that led to the launch of the national innovation²¹ strategy: "Building a (resilient²²) nation of innovators".

This title sums up the objective that should be pursued by the recovery plan (Marshall Plan?) under consideration.

The policies and taskforces that will be required to reset the Canadian economy will be more important than the coronavirus crisis itself: they will determine the prosperity and quality of life of future generations. Innovation must be at the centre of the recovery plan, as must the transformation of the operating models of public and private organizations! It is through a significant increase in our capacity for innovation that we will be able to create a new economy able to function efficiently in the post COVID-19 world

« *Today's economy is dramatically different than the 20th-century production economy. The shift to an intangibles economy, driven by intangible assets such as intellectual property, software, data, and brands, is transforming where economic value is derived and who participates in it. Its unique features and characteristics mean that our conventional policy toolkit requires updating if Canada is to cultivate innovative domestic firms that can compete globally in the age of intangibles.*²³

²⁰ B. Curry, Ottawa seeks 'shovel-ready' projects for post shutdown stimulus plan, The Globe and Mail, 15 April 2020 & different consultations in Ottawa

²¹ Building a nation of innovators, Innovation, Science and Canada Economic Development, 2019

²² Addition COVID-19!

²³ Public Policy Forum, A New North Star II - A Challenge-Based Industrial Strategy for Canada, April 28, 2020

Henry M. Paulson Jr.²⁴ former U.S. Secretary of the Treasury, recommends a modern National Marshall Plan that should include massive public and private investment to rebuild and create the infrastructure of the future. According to him, this program can play an important role in stimulating recovery, creating jobs, and boosting the market. But it must be forward-looking, not only repairing and maintaining roads and bridges, but also investing and making regulatory changes to create a first-class national digital infrastructure.

It is a similar approach that Canada needs to take in the proposed recovery plan. It is the approach that informs the roadmap proposed in this document.

At this stage, we have little information on the role that will be played by the new Industrial Strategy Council announced on May 8 by the Minister of Innovation, Science and Industry, the Honourable Navdeep Bains.²⁵ According to the press release, this council will have an advisory role to assess the scope and depth of COVID-19's impact on industries and inform the government's understanding of specific sectoral pressures. It will provide economic policy recommendations to the appropriate federal ministers. This additional advisory body will build on the strong foundation already established by the economic strategy sector tables.

In this perspective, it is useful to highlight that the report of Canada's Economic Strategy Tables, "[The Imperative of Innovation and Competitiveness: Seizing Opportunities for Growth](#)," stems from thirty-four meetings held in Canada from October 2017 to July 2018 between ninety CEOs and federal deputy ministers and contains thirty-two recommendations, most of which remain to be implemented (based on information available to date). The report highlighted the move to **Phase II** in 2018: "Moving into Phase II, we need to maintain our momentum. That means engaging our sectors into action, sustaining the table apparatus, refreshing our membership, and connecting with superclusters, all levels of government and educational institutions. Basically, making change happen".

The pandemic is forcing us to move into "**Phase III**": accelerating the implementation of the relevant policy measures and recommendations in the sectors most critical to exit from the crisis and to reset the economy badly hurt by COVID-19. The title of this new advisory board is intriguing: it focuses on post-COVID-19 industrial strategy. However, the question remains open as to the scope of its mandate:

- Will it confirm a traditional "*business as usual*" consultation scenario? or
- Will it be equipped to take on the critical role of accelerating the transformation required by this major crisis and mobilize the necessary reinvention of our models of governance, operations, and collaboration?

The credibility and impact of this council will depend not only on the nature of its mandate but also on its autonomy of action, the independence of the expertise it will benefit from, and the transparency of its activities. These considerations are developed in section 3.3. of the document.

²⁴ H. M. Paulson Jr., 7 principles for a post-coronavirus economy, The Washington Post, April 10, 2020

²⁵ Minister Bains announces the creation of the Industrial Strategy Council, Innovation, Science and Economic Development Canada, May 8, 2020

Roadmap to the "new normal".

To be effective, Canada's response cannot be fragmented. It must not only be integrated and coherent, but also be agile and results oriented. The magnitude of the crisis and its consequences force us to recalibrate individual operating models as well as those of the public and private sectors and regional ecosystems.

The magnitude of the crisis and its consequences force us to recalibrate individual operating models as well as those of the public and private sectors and regional ecosystems.

Pandemics cannot be stopped by any government acting alone; this is true at the international level and even more so in a federation. The response to the COVID-19 crisis requires a higher level of coordination and collaboration among the three levels of government, federal, provincial, and municipal.

An April 8 paper co-authored by two experts, Professors Robert Schertzer and Mireille Paquet, highlights the excellent collaboration between Canadian governments to date to protect the safety and lives of Canadians.²⁶ The front-line operational response is led at the provincial-territorial level. It is based on a national approach to sharing information and coordinating action adopted by regular First Ministers' meetings and agencies such as the Public Health Agency of Canada and the Public Health Agency of Quebec.

Nevertheless, the two authors identify two sources of emerging tensions in the management of the current crisis: the distribution of medical equipment and resources across the country and, not surprisingly, the sharing of costs, which are expected to be the largest in Canadian history.

The magnitude of the challenge also underscores the need to reinvent the governance and operating models of Canada's citizen-centred intergovernmental system by instituting agility and simplified access to programs and services from different levels of government.

Speed and effective collaboration are key factors not only of our competitiveness, but also in our collective ability to emerge quickly from this major crisis and return to the path of new normalcy as well as hopefully, growth.

²⁶ R. Schertzer, M. Paquet, [How well is Canada's intergovernmental system handling the crisis?](#), Options politiques, IRPP, 8 April 2020

As Professor Luc Godbout points out in an article published on April 2:

« We must not forget that governments are navigating this crisis on sight and are doing in a matter of days what usually takes several months to design and implement. (...) It is when everything falls apart that we realize the importance of the role played by the State.

*The State is the only agent that can intervene in the economy in the name of the common interest. Beyond the schools of economic thought, liberalism, or interventionism, left or right, the fact is that the State plays a regulatory role of paramount importance in times of crisis.*²⁷ (Courtesy translation)

3.1 THE FOUNDATIONS OF THE INNOVATION BASED RECOVERY PLAN:

“DO NOT REINVENT THE WHEEL” NOR MAINTAIN THE STATUS QUO...

The Government of Canada, the Government of Quebec and the other provinces now face a considerable and complex dual challenge:

- To manage the current state of health emergency in its multiple and equally critical facets with the existential goal of saving as many lives as possible and defeating the pandemic.
- To set up and lead the necessary taskforces to move from the crisis and to reset the economy and to promote a new social dynamic in the country that we may not recognize at this time.

« We must act now. (...) Success will not happen overnight. But it will happen - if we act together now. No single company, industry or level of government can implement the national innovation agenda alone.²⁸

This exhortation is not new; it is taken from the economic strategies' tables report of 2018; they are part of a series of initiatives launched by the Government of Canada, the Government of Quebec, and other provinces to increase funding and streamline business innovation programs. The founding mission of the economic strategy sector tables is to develop a new model of partnership between industry and government that seeks to transform Canada's economic strengths into globally competitive advantages. Taken as a whole, the measures launched since 2016-2017 represent, in many respects, the most important and structuring changes to innovation policy over the last three decades.

The envisaged recovery plan can therefore build on a significant record of sectoral consultations and the many innovation policy measures adopted in its wake. The following sections focus on the courses of action that should be pursued in the development and accelerated implementation of the economic recovery plan that will have to follow the gradual deconfinement phase in which we are moving.

3.1.1. *Some innovation Policy instruments*

While the Innovation and Skills Plan²⁹ is a central element of the Government of Canada's innovation strategy, it is important to recall that the strategy includes a wide range of policy instruments, some of which are relevant to the management of the public health system in these exceptional circumstances:

²⁷ L. Godbout, COVID-19 and State Intervention, Policy Options, IRPP, April 2, 2020

²⁸ Economic Strategy Sectoral Tables, Innovation, Science and Canada Economic Development

²⁹ Building a nation of Innovators, Innovation, Science and Canada Economic Development, 2019

Table 2: Summary of Innovation Policy Measures - Government of Canada

NATIONAL	PUBLIC SERVICE TRANSFORMATION³⁰
STRATEGIC INNOVATION FUND	BEYOND 2020 AND PUBLIC SERVICE RENEWAL
INNOVATIVE SOLUTIONS CANADA	DATA STRATEGY ROADMAP FOR THE FEDERAL PUBLIC SERVICE
INNOVATION CANADA	DIGITAL OPERATIONS STRATEGIC PLAN 2018-2022
VENTURE CAPITAL CATALYST INITIATIVE	RESPONSIBLE USE OF ARTIFICIAL INTELLIGENCE (AI)³¹
EXPORT DIVERSIFICATION STRATEGY AND TRADE POLICY (ECONOMIC AND FISCAL STATEMENT 2018)	IMPACT AND INNOVATION UNIT OF THE PRIVY COUNCIL OFFICE
TRANSPORT 2030 - A STRATEGIC PLAN FOR THE FUTURE OF TRANSPORTATION IN CANADA	

The implementation of these various policy measures is accompanied by an effort to streamline the delivery of more than 90 federal programs that support business innovation. They are consolidated around four flagship platforms: the Industrial Research Assistance Program (IRAP); the Strategic Innovation Fund; the Canadian Trade Commissioner Service (including the merger of several trade promotion programs); and the regional development agencies.

Moreover, tax policy as well as regulatory reform and the removal of barriers to the internal market are expected to support this national innovation strategy. Various departmental plans³² have been developed after consultations and launched separately under the responsibility of specific portfolios.

A number of these initiatives by the federal government, as well as those taken by the Government of Quebec and other jurisdictions, are essential to the success of this undertaking to emerge from the crisis and reset the economy through innovation and accelerated digital transformation. Under the circumstances, it would be unproductive to wipe out all these initiatives.

³⁰ The collective desired outcome of these internal initiatives is a more agile, inclusive, and better equipped public service.

³¹ [Digital Disruption White Paper Series, Responsible Artificial Intelligence in the Government of Canada](#)

³² [Departmental Plans 2020-2021](#), Treasury Board of Canada Secretariat

3.1.2. Need to upgrade the nine³³ economic strategy tables and the five innovation superclusters

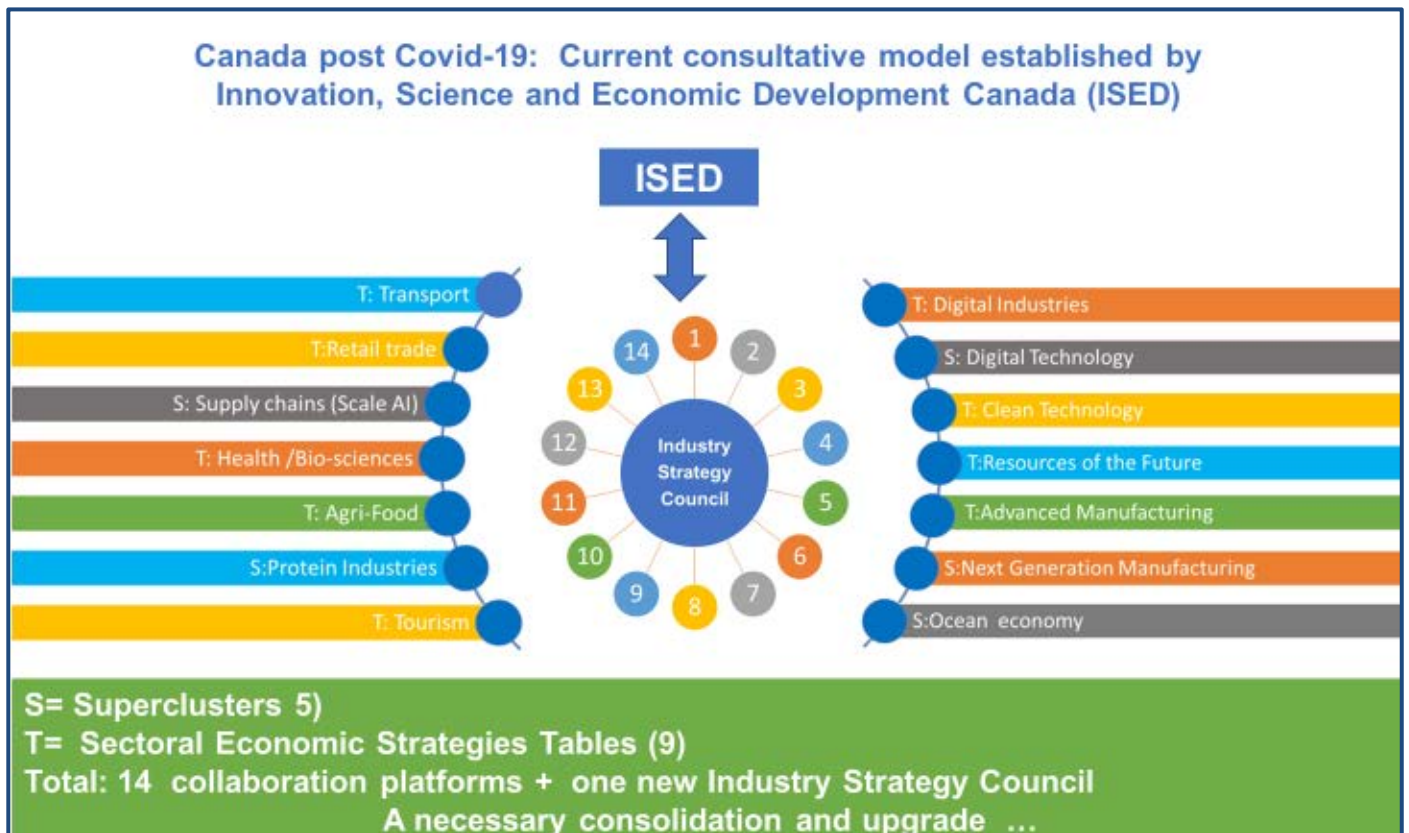
The Economic Strategy Tables put forward an ambitious plan for the long-term growth of Canada's innovation-driven economy. These tables chaired by industry leaders focused on six key sectors: advanced manufacturing; agri-food; clean technologies; digital industries; biosciences and health; and clean resources of the future.

The original six tables made a total of 32 recommendations, which are contained in the report of the "Canada's Economic Strategy Tables "The Imperative of Innovation and Competitiveness"³⁴. The sectoral reports for each of these tables are accessible from this interactive table:

ADVANCED MANUFACTURING	HEALTH
CLEAN TECHNOLOGIES	THE AGRI-FOOD SECTOR
DIGITAL INDUSTRIES	RESOURCES FOR THE FUTURE

Because of the pressures associated with the pandemic, Minister Bains also confirmed the addition of two new Tables, representing the retail and transportation sectors. when he announced the establishment of the [new Industrial Strategy Council](#) on May 8. With this latest addition, the minister has a total of 14 collaboration and/or consultative platforms under his responsibility:

Figure 3: Industrial Strategy Council



³³ The seventh Sectoral Economic Strategy Table on Tourism, dates back to the March 2019 federal budget. Two more tables were added on May 8, 2020: Transportation and Retail Trade.

³⁴ [Report of Canada's Economic Strategy Tables: The Imperative of Innovation and Competitiveness](#), Innovation, Science and Economic Development Canada

The chairs of Canada's six economic strategy tables recognized early on the potential of the five superclusters model to increase the use of innovation and strengthen individual firms. They declared their support for Canada's supercluster strategy, which is essential to help the country double the number of opportunities to move to the next level and create great Canadian companies.

Superclusters are expected to generate network effects such as the sharing of best practices, smooth peer-to-peer incentives, and the creation of demand for more technologically sophisticated goods and services.

The Synthesis Report on the findings of the Economic Strategy Tables chairs recognized that these initiatives were still in their infancy. These measures launched over the past three years have generated interest, impressive stakeholder engagement and very high expectations. The industry and the research and training sectors have undoubtedly been equipped with a diversified toolbox.

However, the capacity for concerted implementation by the various stakeholders (industry, universities, governments) has not yet been demonstrated, nor has the expected impact on the results been assessed before the major crisis we are facing.

The Government's stated commitment to accelerate the implementation of Canada's Skills and Innovation Plan is even more critical to the post-COVID-19 economic recovery. The Industrial Strategy Council should be able to play a critical role in this regard.

However, it must be acknowledged that the various initiatives that have been launched in support of these strategies have got off to a relatively slow start. The severity of the shock caused by the pandemic and its transformative impact requires us to reassess, upgrade, recalibrate or strengthen and consolidate them so that they are commensurate with the major challenge ahead of us. Initiatives taken that do not meet expectations should be discarded.

For example, the five innovation superclusters, a flagship project of the national innovation strategy, were announced three years ago in the 2017 budget. The Public Accounts of Canada for the fiscal years 2017-2018 and 2018-2019 released in December 2019 provide a worrisome picture: Of the \$300 million budgeted for the 5 supercluster activities, \$287.7 million had been provided to ISED to fund these activities.

A total of \$950M has been identified for new spending to support supercluster activity. This total is broken down as follows

(\$ Millions)

2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
0	50	250	250	250	150	950

In fact, only \$5.6 million was spent by the superclusters: less than 2% of the funding used by the superclusters during this period. Results for the 2019-2020 fiscal year, ended March 31, are not yet available.

It is entirely legitimate and timely to examine the reasons for such an apparently poor performance. What are the causes? What are the implications? And, above all, in the face of the major crisis facing us, what are the solutions to make them meet their expected outcomes? The mandates of at least three of these superclusters are directly relevant to the performance of the health system in Canada. The governance and operating models put forward by these different initiatives are still being tested by very different stakeholders. They may still be reluctant, due to a lack of mutual trust, to act together to make effective use of pooled resources in support of objectives and anticipated results.

The pandemic and its economic consequences are testing in real time the ability of the nine economic strategy sector tables and five innovation superclusters to adapt to the new reality and act as accelerators of the transformations required in a much more demanding and dangerous environment for Canada.

COVID-19 is a game changer which should:

- provoke a new awareness
- confirm the urgency of concerted action by all stakeholders; and
- stimulate a profound transformation of the collaboration implementation models by each of the partners.

The challenge is too great and cannot be solved without a major collective effort for the common good.

Of the six initial economic strategy tables, two are of significant interest to us because of their direct and immediate relevance to the ongoing efforts to reopen the economy: the first on health & life sciences and the second on digital industries. The overview available in Appendix II provides a textual summary based on excerpts from the reports of these two economic strategy tables.

Some of the barriers identified by both the Health and Digital Strategy Tables, and the recommendations arising from them, deserve special attention in managing this pandemic and its implications for the Canadian economy.

Table 3: Excerpts from the Health and Digital Economic Strategy Table Reports

Health	Digital
<p>Obstacles:</p> <ul style="list-style-type: none"> • Complex regulatory, reimbursement and procurement processes impede the adoption of innovations • Disconnected digital health systems inhibit the collection, connection and analysis of data needed to inform innovation decision making 	<p>Obstacles</p> <ul style="list-style-type: none"> • Canada lags behind other countries on commercializing innovation • Canadian businesses and governments adopt technology too little and too slowly
<p>Recommendations:</p> <ul style="list-style-type: none"> • Harness Digital Technology <ul style="list-style-type: none"> ○ By creating a national digital health strategy featuring an interoperable digital health platform • Accelerate Innovation Adoption <ul style="list-style-type: none"> ○ By employing value-based procurement across Canada's health systems and establishing a procurement innovation agency 	<p>Recommendations:</p> <ul style="list-style-type: none"> • Transform Canada into a Digital Society <ul style="list-style-type: none"> ○ We must evolve into a digital society where everyone has the means to use technology in their everyday lives • Encourage digital technology adoption by businesses • Establish end-to-end digital government services by 2025 <ul style="list-style-type: none"> ○ The federal government must design a framework for mobile-compatible and accessible end-to-end government digital services for all Canadians. ○ Every government service needs to be delivered online to eliminate the need for in-person visits to government offices and the printing, scanning, and mailing of government documents. ○ The way our government is currently delivering services to Canadians is no longer appropriate for our times. ○ This needs to change, and soon

3.2 FOR THE CONSOLIDATED DEPLOYMENT OF FIVE ECONOMIC RECOVERY STRATEGIC TASKFORCES

The issues identified by the Digital Economy Strategy Table have a cross-cutting scope and strategic dimension that involves all levels of government, industry, education and research, and civil society. The shock we are going through calls for us to reinvent ourselves and paves the way for the urgent data and digital revolution in Canada:

« *A shock of this scale will create a discontinuous shift in the preferences and expectations of individuals as citizens, as employees, and as consumers. These shifts and their impact on how we live, how we work, and how we use technology will emerge more clearly over the coming weeks and months. Institutions that reinvent themselves to make the most of better insight and foresight, as preferences evolve, will disproportionately succeed. Opportunities to push the envelope of technology adoption will be accelerated by rapid learning about what it takes to drive productivity when labor is unavailable. The result: a stronger sense of what makes business and governments more resilient to shocks, more productive, and better able to deliver to customers and citizens*³⁵

The roadmap drawn up in 2018 and the policy instruments deployed remain for the most part still valid. However, they need to be updated to integrate the dimension of this major crisis and its considerable impact on the Canadian economy:

- Those initiatives that, after two years of operation, show questionable performance or disappointing impact should be replaced.
- The contribution of superclusters can be significant: they are already operational, and the funding is in place. However, their governance model will have to evolve considerably to contribute effectively to the recovery.
- They should be able to provide a solid (and tested) basis for ensuring the success of these strategic taskforces that must be deployed as quickly as possible.
- The observations and recommendations of the Health and Digital economic strategies Tables are of immediate relevance.
 - These two tables deserve to be strengthened and mobilized for rapid deployment as priority taskforces.
- To our knowledge, the mandates, composition and activities of the Economic Strategy and Supercluster Sectoral Tables have not yet been reviewed.
- It will be necessary for the new Industrial Strategy Advisory Board to oversee such a stocktaking.

There is every reason to believe that the nine economic strategy sector tables and the five innovation superclusters should probably be consolidated; certainly upgraded, and immediately mobilized within the "national recovery through innovation" strategic taskforces with strengthened mandates and resources.

The magnitude of the economic recovery challenge facing Canada requires a systemic response at the centre of which is the transformation of our governance, operating and collaborative models as described above. This transformation should be supported by the five proposed cross-cutting strategic taskforces, within which the current sectoral and supercluster tables would be consolidated. These five post-COVID-19 economic recovery strategic taskforces are described in the following sections.

³⁵ K. Sneader, S. Singhal, [Beyond coronavirus: The path to the next normal](#), McKinsey & Company, 23 mars 2020

3.2.1. Strategic taskforce: public health

The pandemic, as grave as it is, will not be the last and the risks of new outbreaks cannot be underestimated. The brutal shock that has struck us dramatically confirms the major risk to "national security" posed by this health emergency and the cross-cutting strategic nature of the health sector: it must henceforth be treated as such by governments. A report just published by the National Academies of Sciences, Engineering, and Medicine emphasizes the need for an integrated strategic vision to address these pandemic threats, regardless of their origin:

« *There are advantages to addressing natural, accidental, and intentional incidents or outbreaks as different manifestations of the same family of challenges. They have functional similarities and common prevention, detection, response, and recovery initiatives. They may have ambiguous origins, but the capabilities needed to address them overlap. Ultimately, needs of force protection and national health and safety may be similar or the same in virtually all cases. An integrated view of biological threats prevents bureaucratic boundaries from interfering with partnerships and progress.*³⁶

The main actors of this taskforce are on the front line of our fight against this invisible and deadly enemy. From public health officials to multiple local first responders supported by essential services and providers; they are the links in this human chain that protect us from the coronavirus pandemic. They are carrying out their mission under extremely difficult and dangerous conditions. They are being acclaimed everywhere as the heroes they are in this fight for life, for our lives! They deserve our admiration and our gratitude, and we owe them our full support. This battle is fought daily at the local level; its end is not predetermined: most epidemiologists agree that most jurisdictions will face (perhaps significant) virus outbreaks for an extended period, up to 18 months or more. It is also at the local level that this battle will be won with the real-time support of different levels of government: municipal, (sites of major outbreaks) provincial and federal.

Table 4: COVID-19 Crisis Management: Six Areas of Action and Multiple Theatres of Operations³⁷

WINNING THE (LOCAL) COVID-19 WAR		
1. COMMAND AND DATA NERVE CENTRE: <ul style="list-style-type: none"> • Undetermined termination of operations • Multiple theaters of intervention • Critical importance of logistics • Adaptability 	2. ENGAGE ACROSS SIX DOMAINS : <ol style="list-style-type: none"> Foundational public health, Societal compliance, Health system capacity Industry safeguarding Protection of the vulnerable Economic health 	3. EXPANDING HEALTH SYSTEM CAPACITY: <ul style="list-style-type: none"> • Bed capacity • Human resources • Clinical operations • Supplies management
4. INDUSTRY SAFEGUARDING: <ul style="list-style-type: none"> • Physical barriers • Face guards • Physical distancing • Health screenings before entry • Generous and flexible sick leave • Other approaches for limiting virus transmission 	5. PROTECTION OF THE VULNERABLE COVID-19 especially destabilizing for vulnerable populations: <ul style="list-style-type: none"> • Individuals who were vulnerable before the pandemic • Those who have become vulnerable as a result of the pandemic (for example, being newly unemployed, experiencing social isolation...) • As the pandemic worsens, state and local leaders can proactively track data related to health-related basic needs (for example, Supplemental Nutrition Assistance Program enrollment, eviction rates) 	6. ECONOMIC HEALTH : <ol style="list-style-type: none"> Develop the analytical fact base required to target interventions appropriately Work with industry to operationalize the public economic supports as quickly as possible Ensure that provincial and local governments are ready and able to get payments from both new federal programs and existing safety net programs into the hands of citizens quickly and easily Develop and implement a set of economic recovery interventions that would not only provide immediate relief to people and businesses, but also build a path to a more resilient and inclusive post-pandemic economy

³⁶ A Strategic Vision for Biological Threat Reduction: The U.S. Department of Defense and Beyond, National Academies of Sciences, Engineering, and Medicine, Washington, DC: The National Academies Press, 2020

³⁷ Table created from analysis by McKinsey & Company: T. Latkovic, T. Pollack, J. VanLare, Winning the (local) COVID-19 war, April 2020

The strengths and weaknesses of our health care system are magnified by this pandemic. Governments are all mobilized during a critical health emergency that is testing the human resources, equipment, infrastructures (physical and digital) and supply chain capacities of Canada's health organizations (federal and provincial).

The recommendations of the two economic strategy tables (health and digital) are relevant to the deployment of measures to be taken to modernize and strengthen the capacity of the public health system. The proposed strategic taskforce should give priority to the necessary and urgent major investments required to upgrade not only this nevralgic sector as such but also as a determinant of the resilience of our economy and society.

The governance and operating models of our public health system thus upgraded should give priority to the agility and scalability of health services and personnel (through the establishment of mobile reserves of first responders); health infrastructures; production capacity for critical equipment and strategic reserves. These interoperable models should also be supported by smart, robust, and resilient system-wide supply chains.

The recommendation of the Health Economic Strategy Table to create a national digital health strategy with an interoperable digital health platform should be implemented as a matter of priority.

In this regard, an initiative of the Department of Innovation, Science and Economic Development Canada (**ISDEC**) deserves our attention: a virtual gateway for Canadian manufacturers and other businesses that can help Canada meet critical medical supply needs.

By submitting this form³⁸, each participant gives permission to ISDEC to share the company name, contact information and capabilities listed in this form to complete this work, for further analysis, and in support of potential collaboration opportunities with:

- Other companies/organizations
- Other federal departments and/or provincial government(s)
- Federal Crown corporations.

The participant also gives permission, on behalf of the company, to post the company name, product and contact information online.

This initiative is not only welcome, it is essential to the efficient management of the major health emergency we are facing. This digital entry point, however, does not seem to have been developed and deployed to make optimal use of the massive amount of data thus collected in several critical areas such as:

1. Real-time aggregation and triage of specific supplies sought and identification of clusters of potential suppliers capable of meeting critical public health needs.
2. Real-time monitoring and feedback for each potential supplier.
3. Real-time identification of possible linkages between companies and organizations that have declared their willingness to consider opportunities for collaboration.

This tool, urgently developed, seems to have a triple negative effect in the current emergency:

- Work overload for public servants: analysis, sorting and grouping of responses.
- Lack of a business-accessible platform to facilitate individual feedback and opportunities for collaboration/networking between complementary companies.
- Worryingly slow decision-making and procurement of supplies needed to manage the health crisis.

³⁸ [Call to action: Canadian manufacturers needed to help combat COVID-19](#)

This ISDEC initiative, far from having realized its potential as a smart and interactive platform for real-time collaboration (enabled by currently available technologies), seems to have been limited to a static “suggestions blackbox” role with no tracking system or feedback capability. This entry point was advertised as a dynamic dashboard for the many proposals and solutions offered in the management of the pandemic. It looks more like a dead end.

Among the many proposed solutions, two concrete examples caught our attention and help illustrate this concern:

1. In June 2019, the Jewish General Hospital (JGH) announced the appointment of a Director of Digital Health, "*a first in the health network*".³⁹ On April 9, 2020, this new director confirmed the adoption by this hospital institution of a smartphone application designed at the JGH. This application allows the screening of COVID-19 without any direct contact.

Users will be able to monitor their vital signs simply by looking at their phone screen. They can download the application, and by simply running the application on their screen, they will be able to monitor their breathing rate, heart rate and oxygen level.⁴⁰

Will this initiative by this hospital institution be approved for deployment in the health care system in Quebec? in the other provinces? Will it be registered on ISDEC's "Call to Action..." portal for reference?

2. One element of the solution to the management of the health crisis is undoubtedly the accelerated implementation of one of the recommendations of the Economic Strategy Table on Health: "*the creation of a national digital health strategy including an interoperable digital health platform*". The latter has been the subject of at least one proposal brought to our attention by a Canadian company and one of the world's leading providers of end-to-end traceability systems. This company has proposed the immediate deployment of an intelligent public health platform to support real-time management of the COVID-19 coronavirus.

It integrates four "dashboards" in a personalized and secure way to the main actors of the crisis: citizens, public authorities, healthcare professionals and suppliers. The proposed platform is compatible with existing databases and easily scalable. Its mission is to provide full visibility in real time on the origin of essential products, their progress in the supply chain and their final destination: from manufacturer/supplier to distributor, to hospitals and patients. Traceability data for these critical elements can be harmonized at the national level to help governments and healthcare professionals make informed decisions.

This company responded to this “call to action” in mid-March 2020. The first and preliminary feedback took almost a month to reach the company. Discussions appear to be still ongoing. In the two cases cited as examples, it would appear that the proposed entry portal for Canadian manufacturers and other companies that can help Canada meet critical medical supply needs has not met its mission as advertised when it was launched.

³⁹ [Dr. Justin Cross to Lead Ambitious New Wave of Digital Technology, LGH News, June 2019](#)

⁴⁰ For more information: [Jewish General Hospital adopting app to help treat COVID-19 patients remotely, CBC et A. Derfel, Jewish General set to roll out game-changing app in coronavirus battle, Montreal Gazette, 9 April 2020](#)

3.2.2. Strategic taskforce: digital technology

The lack of an integrated national strategy for the use of massive data and artificial intelligence (AI), or rather augmented intelligence, is the missing transformative link in the chain of Government of Canada policy instruments. An analysis by the Institute for Research on Public Policy (IRPP) shows that Canada's competitiveness and growth prospects are intrinsically linked to its ability to seize the opportunities created by the digitization of the economy.

«

*Since 2016, the federal government has introduced a wide range of innovation policy instruments. For the most part, these measures represent a much-needed update of Canada's innovation support policies, but most do not focus directly on the digital sector of the economy and the challenges posed by new digital technologies.*⁴¹

According to the study, Ottawa needs to expand its innovation agenda through the inclusion of a digital strategy that focuses on three key objectives: 1) accelerating the adoption and diffusion of digital technologies across all sectors of the economy; 2) supporting the growth of companies that have demonstrated international commercial potential; and 3) promoting the creation of companies that can develop disruptive technologies.

The CIFAR research institute⁴² proudly claims to have developed the first national AI strategy in the world⁴³. The “Pan-Canadian Strategy for Artificial Intelligence” is supported by a \$125 million grant. In December 2018, the Institute published the Report on National and Regional AI Strategies,⁴⁴ which identified 18 national and regional AI strategies around the world at that time. It is likely that this number has since increased.

This analysis identifies four categories of national strategies: 1) research and talent, 2) industrial, 3) comprehensive - including all sectors, and 4) policy. The pan-Canadian AI strategy, led by CIFAR in collaboration with the three AI institutes - Amii in Edmonton, Mila in Montreal, and the Vector Institute in Toronto, differs from the other strategies in that it is primarily a research and talent program (category 1).

While this is a welcome and relevant initiative, it is limited in scope and does not address the critical need for a national AI strategy to support the management of this major crisis and its multiple implications for Canadian society and economy:

- Accelerated adoption of AI by the federal government in its key functions (health, procurement, tax collection, smart supply chains and transport systems...) must focus on citizen engagement and essential services. Optimal use of the massive data sets generated by the federal public sector should be the backbone and powerful catalyst for the deployment of proposed national innovation based economic recovery through strategic taskforces.
- The Government of Canada, in its enabling role, must both transform itself and serve as an initiator and promoter of the effective implementation of the “augmented intelligence” national strategy.
- Such an initiative supported by the federal public service will make a major contribution to the necessary transformation of our business models in Canada.
- The long-term vision of AI in the federal government that emerges from the various referenced policy documents is clear and consistent with the principles that seek to protect the common good. Its objective is to reconcile the adoption of digital tools, the safeguarding of the democratic system and the strategic vigilance over data security interests in a competitive global context.

⁴¹ D. A. Wolfe, *A Digital Strategy for Canada – The Current Challenge*, IRPP, 24 January 2019

⁴² <https://www.cifar.ca/fr/a-propos>

⁴³ <https://www.cifar.ca/fr/a-propos/impact-du-cifar#la-premi-re-strat-gie-nationale-en-mati-re-d-ia-au-monde>

⁴⁴ T. Dutton, *The Age of AI: Report on National and Regional AI Strategies*, CIFAR, December 6, 2018.



There is no shortage of inspirational stories emerging from the COVID-19 response — many of which involve the use of technology, but very few of which are driven by it. Emergencies, especially at a global scale, cause fear and, in many instances, truly awesome generosity. No matter your interpretation of the COVID-19 response, one thing should be universal: emergencies are not a blank cheque for state or digital platform power. And amid this historic, global investment in the international connections between our public health systems, it’s absolutely essential that we use technology to amplify institutional capacity and state powers — while we also invest in designing oversight and governance that appeal to established, global standards for the exercise of exceptional powers.⁴⁵

The Government of Canada accelerated and responsible adoption of AI in response to this major crisis can build on the government's ongoing transformation efforts and the experiences of successful integration of AI into the private sector. Six implementation strategies emerge from the literature and the recent analysis published by Hila Mehr, Fellow at the Harvard Roy and Lila Ash Center for Democratic Governance and Innovation:

Table 5: Six Strategies for the Adoption of AI in the Public Sector⁴⁶

<ul style="list-style-type: none"> • Making AI an Integral Part of a Priority-Based, Citizen-Centred Agenda 	<ul style="list-style-type: none"> • Getting feedback from citizens 	<ul style="list-style-type: none"> • Building on available resources
<ul style="list-style-type: none"> • Prioritizing data ready for optimization • Respecting privacy 	<ul style="list-style-type: none"> • Adhering to ethical principles at all times • Restricting decision-making to humans 	<ul style="list-style-type: none"> • Building on available resources • Increasing the capacity of public servants

Based on this analysis, the benefits of AI to governments are clear. Demand for public services is growing and budget constraints are becoming increasingly tight. The accelerated adoption of AI by governments in Canada provides a wide range of opportunities to:

- facilitate the elimination of obsolete administrative practices.
- adopt agile and efficient operating models.
- improve the client experience of citizens and users of services and programs
- empower public servants with more meaningful responsibilities

Canada has fallen behind in the deployment of AI within the federal government and most other jurisdictions in the country. The shock caused by the pandemic is forcing us to catch up and thus strengthen our resilience to future ones. The considerable investments made in recent budgets, as well as the efforts and experiences already achieved in this regard by various departments provide a strong basis to accelerate AI adoption rate in critical areas of government services. In AI, as in so many other fields, preparation creates the conditions for success.⁴⁷

⁴⁵ [The Digital Response to the Outbreak of COVID-19](#) CIGI March 30th, 2020 Sean McDonald

⁴⁶ Extract from [Hila Mehr, Artificial Intelligence for Citizen Services and Government](#), Roy and Lila Ash Center for Democratic Governance and Innovation, August 2017

⁴⁷ M. Karlin, [Responsible Implementation of AI in Government](#), Policy Options, IRPP, February 6, 2018 and M. Jackson, [InnovAItion in the Canadian Federal Government](#), February 6, 2018.

3.2.3. Strategic intergovernmental taskforce: the internal market

The roadmap to the post-COVID-19 "new normal" and the national recovery effort through innovation cannot achieve its full impact without accelerating and deepening the implementation of the Canadian Free Trade Agreement (CFTA)⁴⁸ through the accelerated removal of barriers to the mobility of people, goods and services.

The excellence of intergovernmental cooperation in the current management of the pandemic will need to continue in the implementation of the "Marshall Plan" necessitated by the magnitude of the long-term socio-economic consequences of COVID-19 in Canada. The proposed intergovernmental taskforce on the domestic market should be twinned with a strategic taskforce on international trade and supply chains.

Internal trade is an essential component of business growth in Canada, particularly for small and medium-sized enterprises. Over the years, interprovincial trade in goods and services has grown steadily and in 2017 reached more than \$406 billion. Significant progress has been made in recent years in trade liberalization in Canada. A 2019 IMF working paper estimates that full liberalization of our domestic goods market can **increase GDP per capita by about 4 per cent.**⁴⁹

Premiers agreed in July 2019 to strengthen the economy by reducing barriers to internal trade. They agreed to continue to work cooperatively to ensure the success of the CFTA and to continue to reduce trade irritants as a priority: The identification and subsequent removal of remaining barriers to labour mobility.

- Alignment of regulatory approaches in certain priority areas
- Greater liberalisation of trade in alcoholic beverages
- A review of the Parties' specific exceptions under the CFTA
- Cooperation to further align regulation in certain emerging areas

In January 2020, the federal, provincial, and territorial governments committed to review their own exceptions under the CFTA. The agreement has been amended to allow the Parties to remove or narrow the scope of their own exceptions more quickly and efficiently. The 2019 IMF Working Paper conclusion is very relevant to the pandemic situation:

« With much at stake, federal, provincial, and territorial governments should make reducing internal trade barriers their common priority. Internal trade barriers are a longstanding issue and nothing short of a sustained and concerted collective effort will be necessary to break down barriers that are impeding Canadian businesses from competing on a level playing field and scaling-up. Easier access to the entire Canadian market could also attract more investment to Canada. A "coalition of the willing" could be one way to accelerate progress⁵⁰.

The progress made shortly before the spread of the coronavirus in Canada must not only be continued with the highest priority but also extended to address the barriers to achieving a truly united domestic market. The pandemic is accelerating the ongoing disruptions in global (and North American) supply chains. In response, the envisaged recovery plan cannot have the desired impact without the creation of such a united internal market.

The "coalition of the willing" envisaged in the IMF document made a lot of sense in 2019; the major recession we are in and its impact require the mobilization of this intergovernmental coalition through this strategic taskforce.

⁴⁸ The Canadian Free Trade Agreement is an intergovernmental trade agreement signed by Canadian ministers and came into force on July 1, 2017.

⁴⁹ J. Alvarez, I. Krznar, T. Tombe, *Internal Trade in Canada: Case for Liberalization*, IMF, July 22, 2019.

⁵⁰ J. Alvarez, I. Krznar, T. Tombe, *Internal Trade in Canada: Case for Liberalization*, IMF, July 22, 2019 (page 31).

3.2.4. Strategic taskforce: the national transport network and trade corridors

Consultations leading up to the National Transportation Strategy 2030 identified a number of bottlenecks in this vital network for our economy, including: cost-inefficient practices that undermine Canada's ability to compete in the global marketplace; the need for investment in intermodal transportation infrastructure and policy innovation; regulations and creativity to improve the efficiency of supply chains; and the declining availability of transportation data in Canada.

The necessary federal-provincial undertaking to create a single market in Canada should be supported through the joint priority implementation of the announced strategies to modernize the infrastructures of the national transportation system. Specific emphasis is placed in this report on the strategic trade corridors, including the Quebec City-Windsor corridor that joins the Great Lakes region to the Atlantic Ocean.

One of the five components of Transport 2030 - A Strategic Plan for the Future of Transportation in Canada⁵¹ focuses on trade corridors and global markets⁵². To achieve its central goal of moving goods efficiently to markets, "the federal government has committed to:

- *Support the movement of goods and people by investing more than \$180 billion in infrastructure over 12 years as part of the [Investing in Canada Plan](#)*
- *Use new ways to collect and analyze data*
- *Make sure that data is available to all who operate, oversee, and use the transportation system*
- *Look at new ways to finance transportation infrastructure projects in partnership with other levels of government and the private sector*
- *Make infrastructure investments to address bottlenecks in important trade corridors, including rail export corridors*
- *Work on greater transparency in the rail transportation supply chain*
- *Take a more balanced approach for rail stakeholders*
- *Support a more competitive and efficient rail sector*
- *Make sure our actions support work on government priorities, such as:*
 - *Canada's progressive trade and investment plan*
 - *a pan-Canadian framework on clean growth and climate change*
 - *a national innovation agenda.*
- *The export diversification strategy, which will invest \$1.1 billion over the next six years, starting in 2018-2019, to help Canadian companies access new markets. The strategy will focus on three main areas: investing in infrastructure to support trade, providing Canadian businesses with the resources they need to carry out their export plans, and expanding trade services for Canadian exporters.*

The federal government's Economic Statement 2018⁵³ confirmed a comprehensive and strategic approach to reducing freight congestion and seizing new opportunities along Canada's key trade corridors by:

- *Accelerating Infrastructure Spending - Investments at seaports and along the busiest rail and road corridors will help relieve transportation capacity constraints, providing new commercial opportunities for Canadian businesses to move their products to international markets.*

⁵¹ [Transportation 2030: A Strategic Plan for the Future of Transportation in Canada](#)

⁵² [Transport 2030: Trade Corridors and Global Markets](#)

⁵³ [Fall 2018 Economic Statement, Government of Canada](#)

- To accelerate projects over the next five years, the Government will issue a call for proposals for the National Trade Corridor Fund. Supported by an accelerated investment of \$773.9 million over five years, the Fund will focus on projects that provide the greatest economic benefits, based on better transportation data and reviews of key challenges in business supply chains.
- Improving transportation data - Better access to transportation data will help shippers optimize their routes and help governments better target investments to achieve the greatest improvement in the fluidity of supply chains.

In 2017, to strengthen the quality and accessibility of transportation data, the government launched an integrated information system on multimodal passenger and freight transportation, led by Transport Canada with the collaboration of Statistics Canada. To accelerate the implementation of the system, the Government proposes to provide an additional \$13.6 million over the next three years, starting in 2019.

These commitments are reflected in Transport Canada's most recent annual departmental plan released on March 15, 2020, as priority number 1: improving the performance and reliability of our transportation system to enable the shipment of goods to markets and stimulate growth in our economy by investing in Canada's trade corridors to increase access for Canadian products to the global marketplace. The acceleration of planned investments and the coherent engagement of stakeholders from the public sector (three levels of government), the private sector and research as highlighted in the proposed roadmap are key to the anticipated recovery plan. Upgrading the national transportation network and strategic trade corridors are the two essential components of the "new normal" of our domestic market and international trade in the face of the far-reaching ramifications of the pandemic and the new phase of globalisation we have entered .⁵⁴

3.2.5. Strategic taskforce: international trade and supply chains

The Canadian supply chain is a critical component of the Canadian economy, enabling the movement of \$1 trillion worth of goods, generating \$66 billion in GDP, and employing more than 878,000 people (excluding truck drivers) in Canada. In 2015, \$1 trillion worth of goods were carried by Canadian carriers and \$525 billion worth of exports (Statistics Canada).



There are fundamental questions about whether trade activities will return to normal, or whether some of the global production arrangements will be recast in the light of the COVID-19 experience. After decades of expanding global value chains, some rethinking of these geographically dispersed production arrangements was already under way after the 2009 global recession.

The average length of global supply chains was shortened by about 50 kilometres per year between 2012 and 2016. US President Donald Trump's trade war with China in the past three years has put additional strain on global value chains, with firms struggling to circumvent the heightened trade barriers between the world's two largest economies. The virus pandemic will only heighten concerns about the vulnerability of our economy to shocks that occur far from our borders, and the role that global value chains play therein ⁵⁵.

⁵⁴ See Annex I. Crisis management - International dimensions

⁵⁵ B. Gangnes, A. Van Assche, Trade is among the casualties in the COVID-19 pandemic, Options politiques, IRPP, 27 mars 2020

Because of the vital importance of supply chains to Canada's domestic market and international trade (see Annex I), this taskforce should focus on the immediate steps that need to be taken to:

- Accelerate the planned \$180 billion infrastructure investment.
- Optimize the performance, robustness, and resilience of supply chains through innovation, policy, regulation, and creativity.
- Use new methods of data collection and analysis.
- Ensure that the data is available to all those who operate, monitor, analyze and use the transmission system.

The OECD has just published a specific note on the effects of the COVID-19 crisis on international trade. It considers the Canadian context and suggests relevant terms of reference for the implementation of the proposed work on international trade and supply chains:

COVID-19 AND INTERNATIONAL TRADE: ISSUES AND ACTIONS⁵⁶

The debate around the world is well underway on the impacts of COVID-19 on the structure of global production and global supply chains.

At the international level, diversified production is often a source of resilience and adjustment for businesses in an unfavourable environment, while experience in the agri-food sector has shown that self-sufficiency in supply is not the same as security of supply.

- It will also require business and governments to rethink how best to ensure the resilience of supply chains. This will require a better understanding of the strengths and vulnerabilities of key supply chains in the current crisis and a re-analysis of resilience toolkits in light of this.
- For corporate strategies, this may mean a re-examination, for example, of the structure of companies on a global scale, including redundancy capacity and inventories.
- Governments will need to consider the trade and investment policy environment that can best support resilience; for example, the availability of digital infrastructure to reduce productivity losses during pandemics or improved transition facilitation practices to minimize the potential for disruption of face-to-face processes.
- Governments may also need to consider special arrangements for specific supply chains for strategic goods such as medical equipment; however, this does not necessarily have to be equated with repatriation of production.
- For masks, for example, it would be very costly for each country to develop a production capacity corresponding to the current crisis demand and encompassing the entire value chain; an alternative, efficient and more cost-effective solution may involve the development of strategic stocks or upstream agreements with companies allowing rapid conversion of assembly lines in the event of a crisis.

⁵⁶ [COVID-19 and international trade: issues and actions, OCDE](#)

3.3 GOVERNANCE AND COORDINATION OF STRATEGIC TASKFORCES

The magnitude of the economic recovery challenge facing Canada requires a systemic response, at the centre of which is the transformation of our governance, operating and collaborative models. It forces us to:

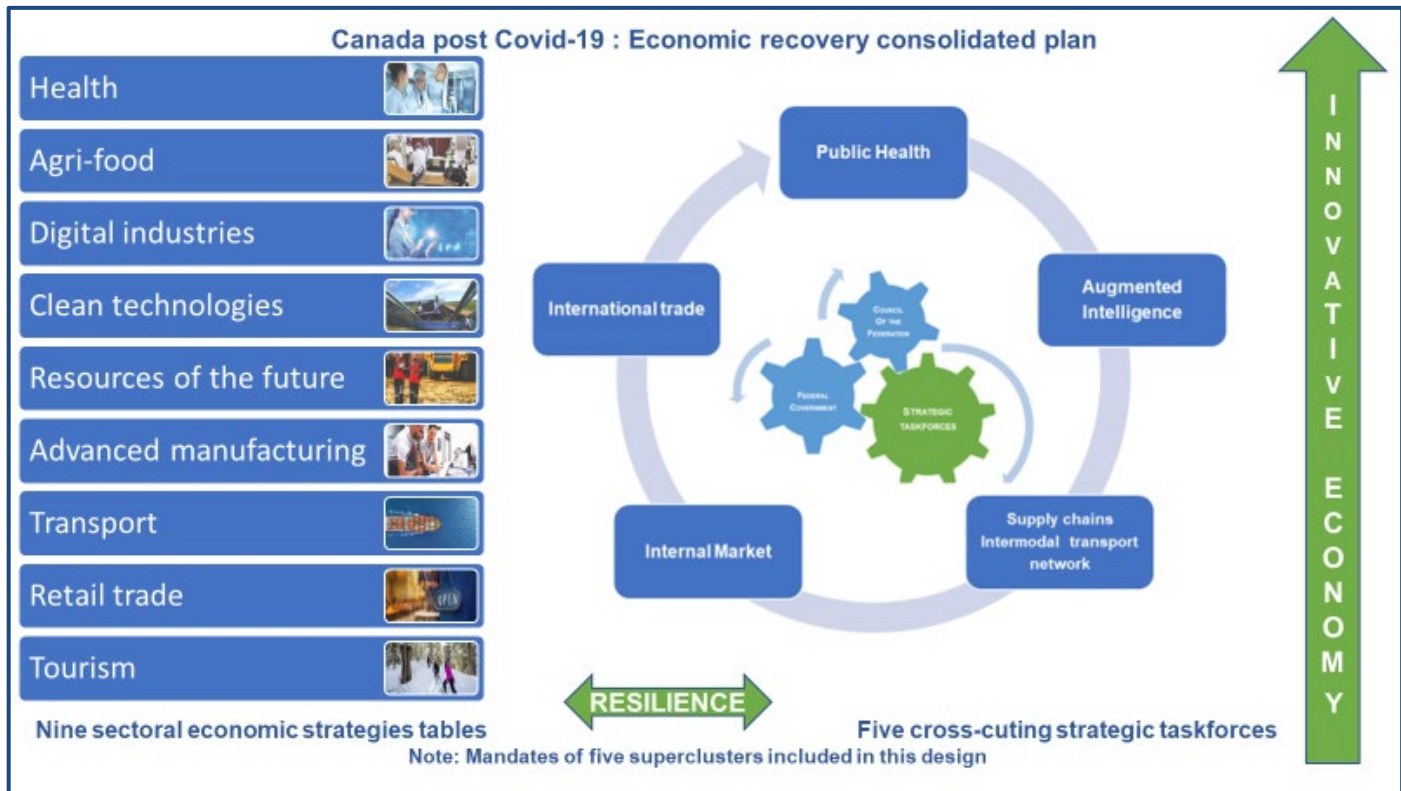
- Mobilize public and private resources and multidisciplinary scientific expertise necessary for the development and implementation of the envisaged recovery plan.
- Reinvent the functioning of our institutions and adopting a new conception of the way we think and manage public and private organizations, including the management of the intergovernmental system.
- Adopt an integrated and coherent response which must be agile and results oriented.

The proposed roadmap builds on recent government strategies and the resources budgeted for this purpose and seeks to adapt, upgrade them as required and accelerate their implementation through taskforces with strong mandates and resources commensurate with the challenges facing Canada. To this end, the "complacent" mode of collaboration must give way to a national crisis management mode and a national recovery plan (modern Marshall Plan).

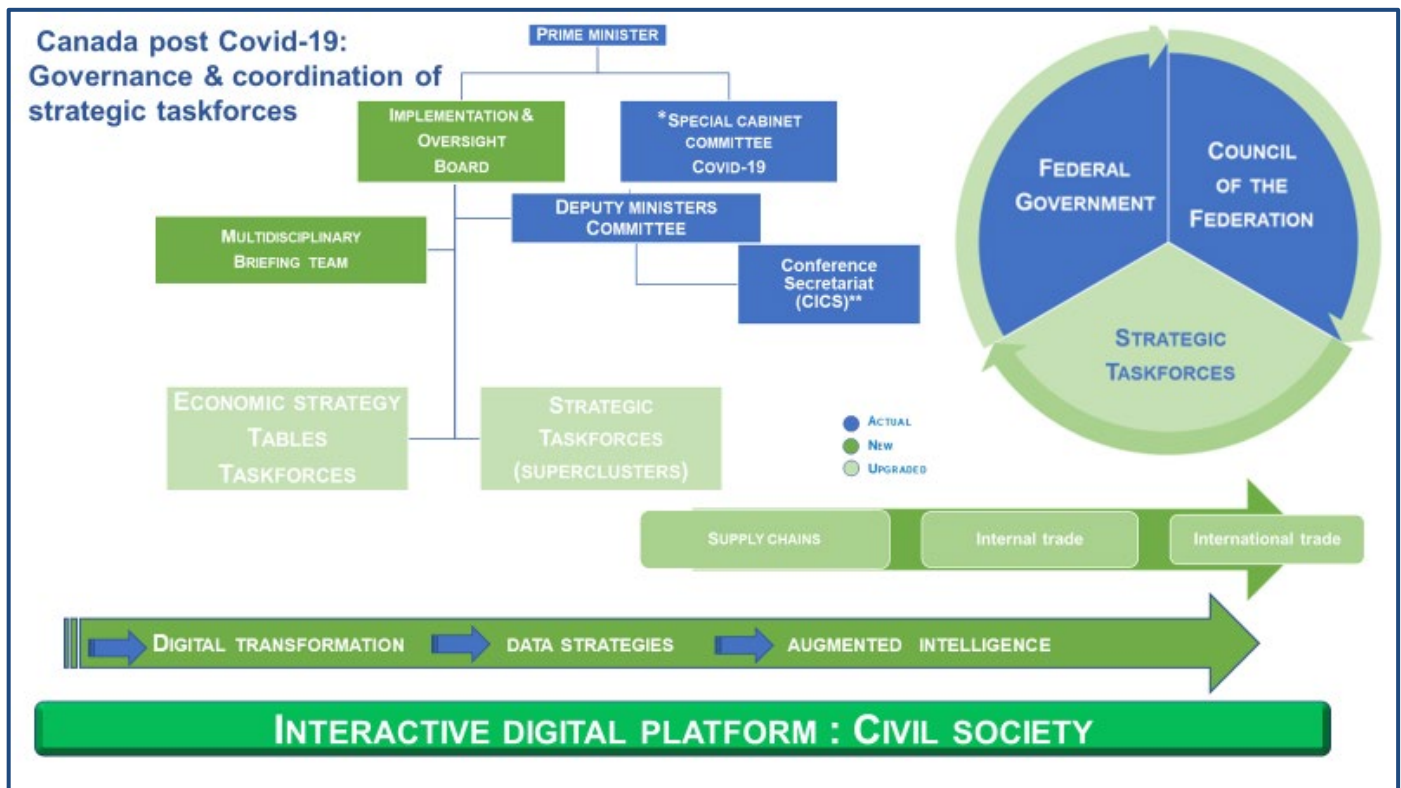
The proposed architecture (graph 4) of this innovation-based recovery plan consolidates the nine sectoral economic strategy tables and five superclusters into five cross-cutting joint public/private strategic taskforces. Each of the five proposed themes is unifying and consistent with systemic priorities of the governments of Canada, Quebec, and other provinces:

1. Public health
2. Digital technology and augmented intelligence (AI)
3. Smart and sustainable supply chains- modernized national intermodal transport network
4. Single internal market
5. International trade post COVID-19 and the [rise of intangibles](#)

Graph 4: Consolidated Economic Recovery Plan



Graph 5: Proposed governance and implementation model: consolidated economic recovery plan



This strategic approach emphasizes issues common to all critical sectors of the Canadian economy in the post-COVID-19 period which require our priority attention and promotes the fundamentals of public policies.

The governance and coordination model for the strategic taskforces (graph 5) does not call into question the responsibilities of the various jurisdictions nor the autonomy of the various stakeholders in the management of the health crisis and the coherent implementation of the proposed recovery plan. Its sole objective is to promote joint, effective, and inclusive management of the development and implementation of this plan through these five strategic taskforces

Here are the main elements:

1. Establishment of an *oversight and implementation board*. This board, chaired by the Prime Minister⁵⁷, could bring together, among others, the chairs of the nine economic strategy tables, the chairs of the five superclusters, as well as the former chairs of the independent panel on federal support for research and the Advisory Council for Economic Growth. The current configuration of the nine economic strategy tables and the five superclusters should be reviewed and consolidated to avoid any duplication of effort and promote optimal collaboration between the strategic taskforce in the implementation of the recovery plan.
2. This board would meet virtually at least once every quarter.
 - a. Duration: 18 months
 - b. Proposed Mandate:
 - i. Promote the continued commitment and trust of the main stakeholders in the achievement of the expected results of the recovery plan and its strategic taskforces.
 - ii. Promote the connection and synergy between the most relevant public and private sector innovation initiatives and resources in support of the implementation of the recovery plan.
 - iii. Monitor progress in the coherent, integrated, and rapid implementation of the national innovation recovery plan by the strategic taskforces.
 - iv. Recommend solutions to address emerging issues and/or policy inconsistencies affecting the performance of plan implementation by stakeholders.
 - v. Provide leadership and support the optimal and rapid deployment of agile operating models and responsible adoption of data and AI strategies in the public and private sectors.
 - vi. Advise government and stakeholders on the essential transformation/adaptation processes needed to address identified systemic issues such as risk aversion, low client/citizen orientation and silo mentality in public and private sector organizations.
3. The committee of deputy ministers would support the special governance and implementation board with its advice and recommendations and would act as a liaison with the entire federal government apparatus as well as with the counterparts of these senior officials in other jurisdictions.

⁵⁷ Alternate Designate: The Chair or Vice-Chair of the Ad Hoc Committee of Cabinet on the Federal Response to Pandemic Coronavirus (COVID-19)

4. The proposed Special Council would be supported by:
 - a. An independent multidisciplinary analysis and briefing team composed of specialists and experts in the critical areas of action of the recovery plan and its strategic taskforce. This team would act as a neutral and reliable "knowledge broker" to provide:
 - i. Data mining, analysis of relevant facts, dynamic mapping of collaborative networks between public, private and research partners involved as stakeholders in the implementation of the recovery plan and its strategic taskforces.
 - ii. Rapid dissemination of relevant best practices in knowledge sharing among stakeholders.
 - iii. A collaborative and interactive gateway for knowledge exchange "intelligent extranet" dedicated to public and private sector participants actively engaged in the implementation of the recovery plan and its strategic taskforces.
 - iv. Identification of potential concrete collaborations in the implementation of structuring investments.
 - v. Appropriate performance evaluation methodologies.
 - b. A support service that could be provided by the Canadian Intergovernmental Conference Secretariat (CICS): a non-partisan organization whose mandate is to provide administrative support and planning services to federal-provincial-territorial and provincial-territorial conferences between First Ministers, Ministers and Deputy Ministers across Canada. This service includes the management of face-to-face meetings as well as virtual meetings or remote participation of delegates, presenters and other stakeholders through enhanced teleconferencing, videoconferencing, and web conferencing capabilities.

The essential intergovernmental coordination in the response to the pandemic would continue to take place through existing mechanisms.

CONCLUSION

Reinventing our governance, operating and collaborations models

The history of human pandemics is very long and far from over. COVID-19 only opens, albeit abruptly, a new chapter, not the last one, for the human species. How do we read its contents and how will we interpret it to draw the lessons needed to survive, recover, and prepare for the next phase?

We still know little about the nature of this virus and even less about its evolution and its consequences for society and the economy. Different scenarios are being developed; these are being debated and revised practically every week if not every day. The mobilisation of the scientific community has been general since 25 January 2020, when the Chinese Medical Journal received a study of the sequencing of this new coronavirus.⁵⁸ This mobilization is supported by huge data analysis capacities.

This human/machine effort is probably unprecedented in the history of humankind; it allows us to hope for a "rapid" end to the pandemic. However, this notion of speed is relative: depending on whether we listen to politicians or scientists, it varies from six to eighteen months or a few years! The level of medical and economic uncertainty is exceptionally high. The "great lockdown" of some 4.5 billion people in 180 countries has already caused considerable human and economic damage.

What are our choices under the circumstances? First, to practice humility: the scale of this crisis and its complexity are such that no scientist, no company, no government will be able to solve it alone. To quote from the fable of Jean de La Fontaine:

*"They didn't all die, but they were all hurt ».*⁵⁹

It is true that not all of us will be victims of his deadly virus, but we are all affected by its socio-economic impacts. These are likely to be considerable and prolonged in the absence of a vaccine, a treatment, or a seasonal "miracle"!

We have, it seems, rejected a long time ago the cynical lesson of the fable in favour of the only one that works in society: active solidarity, which in practice translates into the mobilization of all stakeholders in the resolution of the crisis and its consequences.

As such, there is a stark contrast between the ideological polarization and growing tensions in the United States and the spirit of collaboration that currently prevails in Canada.

The roadmap sketched in this report is based on the necessary mobilisation and the apparent willingness to collaborate displayed by stakeholders. The proposed courses of action are all motivated by a central assumption:

⁵⁸ Identification of a novel coronavirus causing severe pneumonia in human: a descriptive study, Chinese Medical Journal, 25 January 2020

⁵⁹ Jean de La Fontaine, *Les Animaux malades de la peste, Fables de La Fontaine* (Book VII), 1678

- The moment of truth has arrived for Canada. This crisis presents us with an opportunity and an obligation to reinvent the way we govern, operate, and collaborate in all sectors of our society and economy. The need for this transformation is well documented and the milestones to be reached are well identified. The crisis requires us to accelerate the pace of public and private investments needed for our reset to the new normal. We have no better choice but to define it together to succeed.

The proposed taskforces, whatever their configuration, are in line with the initiatives taken and the investments already identified. They are not a defence of the status quo but rather a starting point for joint public/private management according to a new agile model of collaboration focused on the considerable effort required to create the new innovative and resilient society and economy to which we all aspire.

Earth Day was celebrated on April 22nd⁶⁰. It is appropriate to recall that the struggle we are engaged in response to the major crisis accelerated by this pandemic goes hand in hand with our fight for the long-term survival of the human species.

This concerted action must be knowledge-based: it involves the collective mobilization of research. This alliance of knowledge and action is neither binary nor unidirectional. These two components feed into each other in complementary “rhythms” to achieve the desired impact. In this case, the objective and the challenge are enormous and clear: contribute to the strategic decision-making of governments, public organizations, and private partners. This is essential in the management of the current health crisis and for the success of the innovation-based recovery plan and its strategic taskforces.

To be effective, this mobilization of research will have to be multidisciplinary. It is, of course, up to each researcher to determine his or her research priorities and to act accordingly. The gravity of the current situation and the considerable consequences anticipated should lead each researcher to transcend his or her individual research priorities into the collaborative pursuit of the common good. The ongoing mobilization of CIRANO's network of 275 researchers is part of this transformative approach.

Thursday, June 18, 2020

⁶⁰ [Earth Day](#)

Annex I - Background: The Nature of the Crisis

A) Background/Early Warnings and State of Preparedness



Three separate reports published between January and March 2019 warned the international community of the increased risks of pandemics and their serious social and economic consequences.

1. In March 2019, WHO presented its **Global Influenza Strategy 2019-2030** to protect people in all countries from the threat of influenza. Its purpose is to prevent seasonal influenza, prevent the disease from spreading from animals to humans and prepare for the next influenza pandemic. This new strategy, the most comprehensive and ambitious ever developed by WHO, charts a path to protect people every year and prepare for pandemics by strengthening routine programmes. Its two overarching goals are:



- *Build stronger country capacities for disease surveillance and response, prevention and control, and preparedness. To achieve this, it calls for every country to have a tailored influenza programme that contributes to national and global preparedness and health security.*
- *Develop better tools to prevent, detect, control, and treat influenza, such as more effective vaccines, antivirals, and treatments, with the goal of making these accessible for all countries.*⁶¹

⁶¹ [Global Influenza Strategy 2019-2030, WHO](#)

Thomas Wright points out in a recent Brookings article that none of the major countries have followed the direction of this WHO plan, all of them preferring to do what they felt was necessary to protect their interests.⁶²

2. For his part, Daniel R. Coates, director of U.S. national intelligence (DNI), appeared before the Senate on January 29, 2019, to release the most recent U.S. **Global Threat Assessment report**. The warning could not have been clearer:

«*We assess that the United States and the world will remain vulnerable to the next flu pandemic or large scale outbreak of a contagious disease that could lead to massive rates of death and disability, severely affect the world economy, strain international resources, and increase calls on the United States for support...*

*Although the international community has made tenuous improvements to global health security, these gains may be inadequate to address the challenge of what we anticipate will be more frequent outbreaks of infectious diseases because of rapid unplanned urbanization, prolonged humanitarian crises, human incursion into previously unsettled land, expansion of international travel and trade, and regional climate change.*⁶³

3. According to the **World Economic Forum's January 2019 report**, produced in collaboration with the Harvard Global Health Institute, economists estimate that in the coming decades pandemics will cause average annual economic losses of 0.7% of global GDP - a threat on a scale similar to that estimated for climate change:

«*The number and diversity of infectious disease outbreaks are gradually but inexorably increasing, as is their capacity to send shocks through our global economic systems...One threat is the disease itself; the other is fear of the disease. In a world of always-on news and "fake news", fear spreads faster than any pathogen sparking policy reactions, sharp changes in customer behaviour and deep anxieties among staff.*⁶⁴

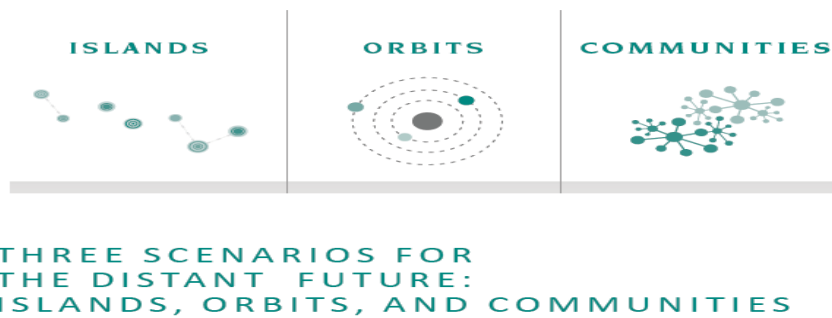
The 2019 U.S. Global Threat Assessment for 2019, by the Director of National Intelligence, was preceded in 2017 by a major synthesis, "**Global Trends 2035 Paradox of Progress**," produced by the National Intelligence Council and its team of 2,500 experts from more than 35 countries combined. This report is produced every four years on the occasion of the presidential election as a contribution to the transition process of the head of state. Donald Trump and his transition team were the main recipients of the report in a classified version. This synthesis presented three possible scenarios for the future world: that of "Islands" (fragmented world), that of "Orbits" (powers competition) and that of "Communities" (prevalence of cooperation in a hyper-connected world)⁶⁵:

⁶² T. Wright, [Stretching the international order to its breaking point](#), Brookings, April 6, 2020

⁶³ [Statement for the Record. Worldwide Threat Assessment of the US Intelligence Community. Daniel R. Coates, Director of National Intelligence. Senate Select Committee on Intelligence. January 29 2019](#)

⁶⁴ [Outbreak Readiness and Business Impact: Protecting Lives and Livelihoods across the Global Economy](#), World Economic Forum, 18 January 2019

⁶⁵ [Global Trends 2035 Paradox of Progress](#), National Intelligence Council, January 2017



As Bruno Tertrais, Deputy Director of the Foundation for Strategic Research, reminds us, it is highly relevant in the current circumstances to point out that one of the three scenarios envisaged by "**Global Trends 2035 Paradox of Progress**": that of a fragmented world ("Islands") is the result, among other factors, of the "great pandemic of 2023"! :

« The global pandemic of 2023 dramatically reduced global travel in an effort to contain the spread of the disease, contributing to the slowing of global trade and decreased productivity. » (p.51)⁶⁶

All the factors considered for the realization of this scenario of fragmentation we find them in the international reality of 2020! The only notable difference: the pandemic hit us three years earlier than the scenario envisaged. All the conditions are met for the aggravation of the disintegration of the international system built after the last world war.

The four reports are part of a long series of studies, articles, testimonies, and expert interviews. All sought to alert decision-makers, influencers, and the public to the rising risks of pandemics.⁶⁷ In Canada, the SARS crisis of 2003 prompted Canadian governments to examine their public health response. Outside of Asia, Canada had been the most affected by SARS. As of August 2003, there had been 438 cases in Canada, 44 of which were fatal. Most SARS cases and all deaths were concentrated in Toronto and the Greater Toronto Area (GTA). In May 2003, Health Canada established the National Advisory Committee on SARS and Public Health. In October 2003, the committee released its report:

« A great many systemic deficiencies in the response to SARS were identified as the Committee went about its task. Among these were: lack of surge capacity in the clinical and public health systems; difficulties with timely access to laboratory testing and results; absence of protocols for data or information sharing among levels of government; uncertainties about data ownership; inadequate capacity for epidemiologic investigation of the outbreak; lack of coordinated business processes across institutions and jurisdictions for outbreak management and emergency response; inadequacies in institutional outbreak management protocols, infection control, and infectious disease surveillance; and weak links between public health and the personal health services system, including primary care, institutions, and home care. »⁶⁸

It is partly based on the recommendations of this report that the federal government established the Public Health Agency of Canada in 2004. Ontario had also launched its own commission of inquiry, which also led to the creation of a new public health agency. The state of preparedness of the Canadian health care system is the subject of debate.

⁶⁶ B. Tertrais, *The Year of the Rat. Strategic Consequences of the Coronavirus Crisis*, FRS Note No. 15/2020, 3 April 2020

⁶⁷ K. Harrington, *The Spies Who Predicted COVID-19*, Project Syndicate, 16 April 2020

⁶⁸ *Lessons from SARS: Public Health Renewal in Canada*, National Advisory Committee on SARS and Public Health, October 2003.

A January 31, 2020 interview by a New York Times reporter of emergency medicine professor Dr. Daniel Kollek provides an interesting overview of progress over the past 17 years:

- Better training, better systems to identify infected patients and more hospital rooms with air filtering equipment.
- In addition, with clear and consistent health updates and instructions, authority is now given quickly to doctors, nurses, and hospital administrators.

However, he points out that Canada is still lagging in large-scale emergency management planning. At a time when many hospitals routinely operate at or beyond full capacity, there is still no way to free up patients who are not as critically ill to increase hospital capacity in times of crisis. Large-scale health crises could be better managed by initial assessment of patients outside of hospitals.⁶⁹

The President of the Canadian Medical Association was much more critical in an interview published in the Globe and Mail on April 9, 2020:

« *The head of the organization representing Canada's doctors says the health care system was "not prepared" for the current pandemic and doesn't see why the federal government doesn't fully acknowledge the weaknesses exposed by the COVID-19 crisis. I am trying to understand the government's response today because I think everyone was caught flat-footed," said Sandy Buchman, president of the Canadian Medical Association. "The front line is telling us over and over that they are not prepared, and they are scared. We are hearing it from everywhere.*⁷⁰

B) Necessary audit and lessons learned

These alerts, whether from the WHO, the scientific community or health authorities, became more urgent late last year and went into the red in January 2020. It is still too early to audit the state of preparedness and performance during the crisis of the various national, regional, and local jurisdictions as they face major and immediate risks, as is the case with COVID-19. As early as 2018, the Economic Strategy Table on Health stressed the need to address the processes that stifle creativity and hinder the adoption of promising innovations in the health system such as:

- Complex regulatory, reimbursement and procurement processes impede the adoption of innovations; risk aversion in the procurement culture emphasizes short-term costs rather than broader value considerations; and disjointed digital health systems hinder the collection, compilation and analysis of data needed to make informed decisions about innovation.⁷¹

We cannot wait for the results of these essential evaluations and independent audits of the public authorities' management of this major crisis. Urgent and sometimes improvised action is needed. However, it would be prudent to take the first steps in the methodology required to carry through this critical evaluation and monitoring process. It will be equally essential to invest (or re-invest) in the scientific, public health and medical infrastructure needed to prevent, detect, and respond to the next infectious disease threat.

It will be up to each jurisdiction to make a rigorous and independent assessment of the performance of the various actors and to implement the recommendations that will result from this public inquiry.

⁶⁹ I. Austen SARS Was Deadly in Canada. Is the Country Ready for Coronavirus? The New York Times, 31 January 2020

⁷⁰ K. Tomlinson, G. Robertson, J. Keller, M. Walsh, Head of Canadian Medical Association pushes Ottawa to explain lack of preparation ahead of pandemic's arrival, The Globe and Mail, 9 April 2020

⁷¹ Report of Canada's Economic Strategy Tables: Health and Biotechnology Science, Innovation, Science and Canada Economic Development

It must be acknowledged that the response of public authorities at several critical levels is very uneven, ranging from dramatic fiascos in some cases to role model success in a minority of cases.

According to several observers, the only countries emerging from this crisis with their credibility intact so far are Asian democracies such as South Korea, Taiwan, and Singapore. Germany is showing similar signs of performance, especially in the tests.

These direct warnings of the risks of pandemics speak for themselves; they are even more so in the context of the vulnerabilities of the Canadian economy and the risks associated with a deterioration in its innovation and productivity performance. The many consultations and reports both at the federal level and in Quebec, particularly over the last five years, bear witness to this. This diagnosis of our disappointing performance in terms of innovation, adoption of information technologies, and optimization of massive data, particularly in health systems, is shared by a broad consensus of public and private sector stakeholders in Canada.

This consensus is reflected in the implementation of the national innovation strategy and similar and complementary policies in Quebec. The new innovation policy instruments which have been put in place all share the common objective of building an innovative society by fostering the emergence of a culture of innovation.

Canada's GDP position relative to our international partners continued to erode prior to this pandemic due not only to our weak domestic productivity performance, but also to faster growth in other countries. How will this fragile situation affect our ability to carry out the considerable effort required to manage the far-reaching consequences of this major crisis? It is still an open question!

C) Crisis Management - International Dimensions

«*If I had to choose a phrase to describe the state of the world, I would say that we are in a world where global challenges are increasingly integrated, and responses are increasingly fragmented, and if this trend is not reversed, it is a recipe for disaster.* UN Secretary-General - Davos, January 2019

The severity of the health, economic and geopolitical ramifications of the pandemic will depend on the duration of this major crisis. If it lasts only a few months, the economy could rebound quickly in the least affected and best prepared countries with a return of aggregate demand. This scenario that we all wish for is increasingly being challenged. The evolution of the pandemic and the responses to it point to one extremely important factor: It is now clear that we will not return to the situation prior Covid-19. The "old normal" is gone for good.

If we are faced with a longer crisis (12-18 months, new COVID-19 wave? Lack of effective treatment and/or vaccine?), Canada and other affected countries will emerge profoundly weakened in according to scenarios, each more dramatic than the others:

«*A collection of massive domestic crises will collide, as health systems collapse or come close to it and governments struggle with double-digit unemployment, a severe recession or depression, plummeting revenue, increased expenditure, and mounting debt. The public will demand, and is entitled to, levels of redundancy in our manufacturing system. The challenge after this crisis ends is not to resist calls for reducing globalization, and the associated vulnerability, but to understand how best to reshape that process.*⁷²

⁷² T. Wright, [Stretching the international order to its breaking point](#), Brookings, 6 April 2020

Canada is an open economy that relies heavily on international trade for economic growth and quality of life. Our interdependence with the United States is imposed on us by geography. We will not be able to insulate ourselves from the coming economic "perfect storm".

Bipartisan calls are growing in Washington for the U.S. to reduce its dependence on China for key drugs and supplies due to widespread shortages during the coronavirus pandemic. The same is true in Canada. While our heavy supply chain dependence on China for medical manufacturing has been clearly apparent for about two decades, many observers and policy makers agree that the pandemic reveals just how vulnerable we are as we must rely on Beijing and other countries to help provide the necessary tools to combat the pathogen.

A recent analysis by an OECD expert in trade policy and government supply chains rightly points out that it is premature to conclude that global value chains create economic vulnerabilities in times of a pandemic such as the one we are experiencing. According to Sébastien Miroudot, it is a mistake to equate self-sufficiency with robustness. It is also a mistake to focus exclusively on the production location when the imperative is to radically increase production of vital medical supplies.

« The risk management literature has been looking at the resilience and robustness of supply chains for more than 20 years. It does not conclude that domestic production or shorter supply chains are the best way of addressing risks ... it offers guidance on different strategies for robustness and resilience. The risk management literature makes an important distinction between resilience and robustness in supply chains:

- Resilience can be defined as the ability to return to normal operations over an acceptable period of time, post-disruption.
- Robustness is the ability to maintain operations during a crisis (Brandon-Jones et al. 2014).⁷³

Canadian public authorities and manufacturing companies would be well advised to take these considerations into account as we develop our response to the crisis facing us. This crisis is global in nature. It is in Canada's strategic interest to participate in and support close multilateral cooperation.

- This is essential first and foremost to win the war against the coronavirus COVID-19 and to ensure the establishment and maintenance of a vaccine and antiviral "supply chain" from research to clinical trials to the manufacture and delivery of billions of doses.
- This "supply chain" must remain sustainable and scalable. It cannot be rebuilt every time the virus mutates or when a new virus appears: There will be mutations and new viruses! Do we need an international "Manhattan Project" to deal with future pandemics? Is WHO able to provide the leadership required in the circumstances? With international cooperation at its lowest level, could it even work?
- This cooperation is equally vital to ease international trade tensions and reduce the risks of a global economic depression.

The international organizations, to remain relevant, will also have to reinvent themselves with the support of groups such as the G20. Rising tensions between the United States and China bode ill for this.

⁷³ S. Miroudot, « Resilience versus robustness in global value chains: Some policy implications ». Dans R. Baldwin, S. Evenett, *COVID-19 and Trade Policy: Why Turning Inward Won't Work*, OCDE, 29 April 2020

D) Anticipated implications

A white paper published on April 14 by InnovationLabs deserves our special attention, as does its previous study on COVID-19 and scenario planning.⁷⁴ This white paper certainly does not provide easy solutions. It highlights the complexity of the current reality, the likely changes and how to think about moving to the "new normal" after the COVID-19 crisis. It approaches this reality from a variety of perspectives (economy, society, government, family, business) while looking for leading indicators that can tell us the direction and intensity of change.

« *The Next Normal, is based on the premise that while we're not going back to how things were, the way things are going to be isn't going to be permanent either: we're entering a period of flux.*⁷⁵

We cannot rule out the likelihood of an economic depression. In such circumstances it is more prudent to prepare Canada for a fundamental and lasting disruption. Difficult to anticipate before the sudden and massive shock that we are experiencing, it only accelerates this probability for the global economy. If it turns out that the impact will be less severe, which we hope it will be, we may have been over-prepared. This is clearly preferable to the alternative that is increasingly being discussed. Moreover, the roadmap outlined in this document is, for the most part, based on the accelerated implementation of the investment strategies and policy measures already announced.

Several observers⁷⁶ argue that the current pandemic could put an end to globalization as we know it, especially if the pandemic is prolonged. Gérard Arnaud, former French ambassador to the United States, suggested that when a crisis occurs, the question is whether it breaks a trend or confirms it. He said:

« *There is "an assault on globalization" from multiple sources — the financial crisis, U.S.-China competition, climate-change activists pushing for people to buy local. COVID-19 piles on the pressure. Countries will be wary of outsourcing crucial medical supplies and pharmaceuticals to other countries. Supply chains more generally will be disrupted and will be hard to repair. Governments will play a much larger role in the economy and will use that role to rebuild a national economy instead of a global one — their priority will be domestic industry.*

Bruno Tertrais of the Foundation for Strategic Research agrees:

« *Major crises are usually trend accelerators, and this one will be no exception. The slowdown in globalization was already underway. The ratio of international trade to gross domestic product (GDP) had already declined (61 % in 2008, 59 % in 2018), as had the ratio of foreign direct investment (FDI) to GDP (3.8 % in 2008, 1.4 % in 2018). This was due to the financial crisis, but also to disasters revealing the vulnerability of economies (Japan, 2011), then the rise of nationalism and protectionism, of course, but also technological change (automation allowing the repatriation of certain industries), and environmental concerns. In the short term, companies will want to restore their margins and thus will continue to build in or buy from Asia. In the medium term, however, value chains are likely to be shortened and just-in-time production will decline. The concept of strategic stocks will be applied to healthcare (today, 80 % of active ingredients for medicines are manufactured in India and China). Resilience to international shocks will be a watchword for economic policies.*⁷⁷

⁷⁴ Covid-19 and Scenario Planning, InnovationLabs, 27 March 2020

⁷⁵ Responding to Covid-19: The Next Normal, InnovationLabs, 14 April 2020

⁷⁶ T. Wright, Stretching the international order to its breaking point, Brookings, 6 April 2020

⁷⁷ B. Tertrais, The Year of the Rat. Strategic Consequences of the Coronavirus Crisis, FRS Note No. 15/2020, 3 April 2020

Byron Gangnes and Ari Van Assche, for their part, stress the need for urgent efforts by Canada to preserve regular commercial freight channels. The recent decision by Canada and the United States to keep their shared border open to the movement of goods by road and rail is a step in the right direction:

« *Canada also needs to collaborate with its trade partners to ensure no new barriers to trade are erected. Past experiences have shown that governments like to turn to protectionism when facing a severe economic downturn, but it can lead to adverse effects that have far worse consequences. For example, export restrictions would cut off many medical devices that Canada currently uses to diagnose and treat COVID-19.*⁷⁸

The considerable epidemiological and economic uncertainty surrounding the COVID-19 pandemic teaches us that projections at 6 or 18 months are likely to be wrong in almost every aspect and circumstance. Several analysts and institutions are still predicting a rebound in the economy in the fourth quarter of this year or early 2020 (IMF). Many others, such as Henry M. Paulson Jr. former U.S. Treasury Secretary Henry M. Paulson Jr., stress the need for National Marshall Plans to avoid the horrors of the Great Depression⁷⁹! In Canada, IRPP has just published an article by Jim Stanford calling for the adoption of such a plan:

« *This is war, and it will take a public-led reconstruction plan to rebuild our economy and create opportunities. The debt will soar, but it must...Think of post-pandemic rebuilding like a modern Marshall Plan (replicating the enormous, government funded effort to rebuild Western Europe after the Second World War). We will need a similar commitment to all-round reconstruction. We will need equally massive fiscal injections. And we will need a similar willingness to use tools of direct economic management and regulation — including public service, public ownership, and planning — to make it all happen.*⁸⁰

⁷⁸ B. Gangnes, A. Van Assche, Trade is among the casualties in the COVID-19 pandemic, Options politiques, IRPP, 27 March 2020

⁷⁹ H. M. Paulson Jr., 7 principles for a post-coronavirus economy, The Washington Post, 10 April 2020

⁸⁰ J. Stanford, We're going to need a Marshall Plan to rebuild after COVID-19, Options politiques, IRPP, 2 April 2020

Annex II

Economic Strategy Table - Health: Overview Report (excerpts)

Report of Canada's Economic Strategy Tables: Health and Biological Sciences

Note: The content of this section reproduces excerpts from these recommendations and supporting comments.⁸¹

VISION:

- By 2025, Canada will double the size of the health and biosciences sector and become a top-three global hub by: leveraging and advancing innovative technologies; attracting and retaining capital, skills and talent; and ensuring a vibrant ecosystem that will unleash the full potential of the sector and lead to improved health outcome
- Canada needs to unlock the full potential of its innovations and accelerate the pace of commercialization to ensure a sustainable, globally competitive health ecosystem with a robust innovation economy and improved health outcomes.
- We need to strengthen the entire ecosystem to get Canada on the trajectory to become a world leader.
- Economic growth and improved health outcomes are not mutually exclusive. They should go hand in hand.

OBSTACLES TO OVERCOME:

Addressing processes that stifle innovation and hinder the adoption of promising innovations in the health-care system is key to advancing Canada's global competitiveness and meeting our growth targets. The following barriers stand in the way of us achieving our health and biosciences goals:

- Complex regulatory, reimbursement and procurement processes impede the adoption of innovations
- A risk-averse procurement culture prioritizes short-term focus on cost rather than broader considerations of value
- Disconnected digital health systems inhibit the collection, connection and analysis of data needed to inform innovation decision making
- Skills shortages and lack of access to executive level talent hinder the sector's competitiveness
- Limited access to capital leads many Canadian firms to exit the market through mergers or acquisitions rather than accrue value domestically

PROPOSED MEASURES:

- We propose sector-wide actions that will unleash Canadian innovation and place our health and biosciences firms on a higher trajectory. Based on research, global best practices and insights from Table members and our industry peers, we propose five areas of focus to transform the life science ecosystem in Canada

⁸¹ Report of Canada's Economic Strategy Tables: Health and Biotechnology Science, Innovation, Science and Canada Economic Development

MEASURES PROPOSED IN THE REPORT: ECONOMIC STRATEGY TABLE - HEALTH

ACCELERATE INNOVATION ADOPTION	DESIGN AGILE REGULATIONS	HARNESS DIGITAL TECHNOLOGY	DEVELOP & ATTRACT TALENT	CREATING ANCHOR FIRMS
By employing value-based procurement across Canada’s health systems and establishing a procurement innovation agency	By adopting international best practices, eliminating duplication across jurisdictions, and decreasing review times	By creating a national digital health strategy featuring an interoperable digital health platform	By equipping Canadians for highly skilled jobs, eliminating hiring barriers and streamlining government skills programs	By mobilizing late-stage capital, expanding high-potential companies and broadening tax incentives for research and development.

- "ACCELERATE INNOVATION ADOPTION BY EMPLOYING VALUE-BASED PROCUREMENT WITHIN CANADA’S HEALTH SYSTEMS AND ESTABLISHING A PROCUREMENT INNOVATION AGENCY"

Health-care procurement decisions in Canada hinder innovation adoption by emphasizing price over other measures of value such as improved outcomes and reduced demand for additional medical services. Firms that have developed innovative, high-value-added products may therefore have great difficulty getting their products adopted into Canadian health care systems if their initial cost is higher.

This recommendation is valid for the health system as well as for major supply and infrastructure programs; a systemic shift towards a balanced approach that takes into account initial acquisition costs to focus on long-term value and resilience is needed.

- "HARNESSING THE POTENTIAL OF DIGITAL TECHNOLOGIES"

High-performing interoperable, digital systems are a critical enabler of data-driven advances in health. Artificial intelligence is already being used to create patient-centric treatment plans based on a combination of data analytics and the most recent scientific studies. Digital and data transformation will increasingly play a role in finding active therapies for incurable or difficult-to-cure diseases as well as greater success in targeting specific treatments to individual patients. The result is a more personalized approach to health care through customized treatment plans, enabled by a strong digital technology ecosystem.

To become a global leader in health digitization, **we recommend that the federal government work with the provinces and territories to develop and implement a comprehensive digital health strategy.**

To achieve this, the government should leverage the expertise and relationships of existing organizations such as the federally funded pan-Canadian health organizations. The strategy should operationalize six guiding principles for investments in digital health and health data:

1. Common data and agreed-on technical and formatting standards
2. A patient-centric approach that ensures health information follows the patient regardless of geographic location, provider, or organization, and ensures patients retain the right to unencumbered access to their own health data
3. Interoperability across points of care, including common facilitating platforms/interfaces
4. Open architecture systems that enable rapid modification to accommodate future states
5. Private–public partnerships with well-defined roles for government and industry
6. Common privacy, data, and security frameworks

Economic Strategy Table - Digital: Report Overview (excerpts)

Report of the Canadian Economic Strategy Tables: Digital Industries

Note: The content of this section reproduces excerpts from these recommendations and supporting comments.⁸²

Potential to be realized:

- Digital firms must have access to talent and the opportunity to scale up and stay in Canada.
- Canadian industry and post-secondary institutions must work together to train highly skilled workers for the future economy.
- Canada’s leadership in artificial intelligence and digital creative content must be leveraged and brought to market.
- Canadians must be able to participate in, and benefit from, the digital economy.
- Canada’s policy environment must support a comprehensive data and IP strategy

Objective:

- To foster digital innovation and excellence in Canada, we need to grow the number of large Canadian digital companies. These high-growth firms will anchor Canada’s global leadership. Our goal is to double the number of businesses earning \$1 billion or more in annual revenue (from 13 to 26) by 2025.

Obstacles to overcome:

- Canada lags behind other countries on commercializing innovation.
- There is a national scarcity of C-suite talent with experience scaling up businesses.
- Skilled STEM talent is severely limited, and competition is fierce and global.
- Canadian businesses and governments adopt technology too little and too slowly.
- Affordable, reliable, high-speed internet access is not universally available.
- Culturally, Canadians don’t correctly acknowledge the impact of innovation on their everyday lives.

⁸² Report of Canada's Economic Strategy Tables: Digital Industry, Innovation, Science and Canada Economic Development

Recommendation of the Economic Strategy Table - Digital

We call for action in four priority areas:

