

COVID-19 – Economic Policy Options for Managing and Recovering from the Crisis in Quebec and Canada

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When he returned to Quebec, he began an academic career in 1973 at the Université du Québec à Montréal, and then, in 1975, at Université Laval, where he became Chair of the Department of Economics in 1984. He also acted as an advisor to the Canadian and Québec governments. More specifically, he was Director of Research and co-author of the Report on Savings in Québec released in 1980. As an expert advisor to the House of Commons

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In 1986, Henri-Paul Rousseau joined the National Bank, where he held several strategic positions, including Senior Vice-President, Treasury and Financial Markets. From September 1990 to April 1991, he served as Secretary of the Bélanger-Campeau Commission on the Political and Constitutional Future of Québec. He was head of Boréal Assurances from 1992 to 1994 and then became President and Chief Executive Officer of Laurentian Bank of Canada before being appointed President and Chief Executive Officer of the Caisse de dépôt et placement du Québec, a position he held from September 2002 to May 2008.

From January 2009 to the end of December 2017, he served as Vice-Chairman of the Board of Directors of Power Corporation of Canada and Power Financial Corporation. He is also a Director of several companies, including Great-West Lifeco and IGM Financial and their subsidiaries, as well as Putnam Investments in the United States. He was a Director of the Global Financial Markets Association from October 2010 to July 2014.

Henri-Paul Rousseau has served on the boards of Santander Bank since 2015, Santander Holdings USA since 2017 and Banco Santander International since 2020; he has been Chairman of Noovelia since 2018.

In 2004, Concordia University awarded him an honorary doctorate and he was elected to the Academy of Great Montrealers in the Economic Sector in 2006. That same year, on the fringe of the Entretiens Jacques Cartier - a forum for exchanges on major societal issues - the Université Lumière Lyon 2 awarded him an honorary doctorate. In 2007, the Université de Sherbrooke and Université Laval awarded him the same distinction. He received the medal of Commander of the Order of Montreal in 2016 and was named a member of the Order of Canada in 2018.

Henri-Paul Rousseau has been personally involved with several social and cultural institutions and in the education and health sectors by leading several fundraising campaigns. In addition, he has been a volunteer with the Montreal Heart Institute Foundation for more than 20 years, including nine years as Chairman of the Board of Directors, a position he held until July 2018. He was a member of the selection committee for the Apogee Canada 2015 and 2016 Research Excellence Fund.

Since 2012, Henri-Paul Rousseau has chaired the Tremplin Santé Foundation, which he created to encourage healthy lifestyle habits with young people in Quebec and Canada. Since 2010, he has been founding co-chair, with businessman Charles Sirois, of Réseau QG100, a private non-profit organization whose goal is to contribute to the growth of winning companies in Quebec by accelerating their growth worldwide.

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Abstract

This document reflects proposed economic policy options for managing and recovering from the crisis in Quebec and Canada, with a trifold purpose: help manage the health crisis, support our economies in the short term, and contribute to build a better economic infrastructure in the longer term.

Amidst the COVID-19 crisis, governments are urged to take significant actions in the lives of citizens through:

- 1. Supporting the health care system to meet the health care demand, which they attempt to reduce through containment and precautionary measures in the hope of flattening the virus spread curve;
- 2. Introducing measures to support workers and businesses forced to shut down during this health crisis and to stabilize the financial system;
- 3. Implementing policies to promote a healthy rebound in economic activity beyond the crisis and thus accelerate the return to "a normal life" as soon as possible.

Medical breakthroughs or a warmer climate might overcome the current health crisis; however, the entire planet will be very likely caught in a funnel and fall into a long and deep recession.

In the post-COVID-19 world:

- Governments will be both more indebted and more present in society and the economy;
- E-commerce, teleworking and digital governance activities will have taken on huge proportions and will shift our societies into the digital age faster than expected;
- "Deglobalization" will take the form of a push toward local and national markets;
- Environmental concerns, coupled with new social tensions, will make collective decisions more challenging and complex;
- New forms of cooperation and collaboration between the private and public sectors will prevail, due to financial constraints and the scarcity of specific resources, chiefly in the health care and food business.

According to the main thrust of this paper, designing policy responses, for Quebec and Canada as well, so as to "kill three birds with one stone", i.e. to manage the health crisis, support the economy during this compulsory pause and bounce back quickly in the aftermath of the shock, is possible if our actions are based on a long-range vision of society.

Based on this vision, our society will be:

- set up with a "strategic reserve" to deal with future crises;
- supported through robust and efficient regional and sector-based ecosystems, capable of managing the trifold transition demographic, ecological and digital - our world is facing;
- driven by a decentralized government, with regions relying on digital and artificial intelligence tools to reach out to citizens, to provide them with services and to revamp democratic engagement while respecting their privacy.

Four immediate public-private initiatives are proposed to design these actions.

The first initiative is intended to strengthen and even develop our Quebec and Canadian industry in the manufacturing of medical and paramedical equipment, in cooperation with the other provinces and the federal government.

The second initiative is designed to reinforce our local agri-food industry, through an acceleration of its digital shift, thereby fostering the implementation of high-level food safety, traceability and logistic standards.

The third initiative is purposed to expedite digital and robotics shift of our transportation and logistic infrastructures.

In addition to these three initiatives, a fourth project is intended to set up a "strategic reserve" to deal with future crises.

We can move forward straightaway with this set of recommendations to help position Quebec and Canada among the societies who have managed to overcome COVID-19.

This unprecedented health crisis provides us with a great opportunity to position Quebec as a modern, inclusive and democratic economy. We *definitely* cannot miss this opportunity.

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PART ONE

Preliminary Considerations: The Crisis and Its Aftermath

1.1 THE CRISIS

Hopefully, within a few months, drugs will turn the situation around, and this would be a better outcome! However, it would be wiser to keep this hope alive while managing the crisis by assuming disruptive economic scenarios, or even a deep and long recession. The latter would be largely caused by the failure of the United States - and perhaps other countries - to manage the health crisis. In the worst-case scenario, this could have a destructive impact on our trade with the United States and with our other trading partners, lowering the demand for our products, reducing the supply of many goods and services, and breaking up supply chains.

The current health crisis is hurting economies, as the only effective way to flatten the virus spread curve is partial or total containment, which, by definition, eliminates the foundation of the economy itself, which is the exchange of goods and services between economic agents, be they individuals or businesses.

Obviously, the most affected sectors are tourism and travel, airlines and transportation companies, the oil and gas industry, the automotive sector, real estate, restaurants, education, arts, culture, recreation and sports, and consumer goods of all kinds. On the other hand, demand for food products, catering services and health, medical and paramedical products is booming, as are the needs for Internet services, telecommunications, logistics, delivery and transportation.

The current health crisis is hurting economies, since the only effective way to flatten the virus spread curve is partial or total containment, which, by definition, eliminates the basis of the economy.

It is possible to develop less pessimistic scenarios, but an economic policy must now be established by killing three birds with one stone: managing the crisis, investing now to strengthen key sectors of the economy, and preparing for the future with a longterm vision of our society.

The first line of defence of health care systems is tested in all its capacities and functions. Although supply chains have so far been successful in delivering essential goods to the population, there are already bottlenecks, stock-outs and exorbitant price increases in health-related sectors. In a few weeks and at most a few months, these disruptions of all kinds will be more widespread and will affect several sectors. We will have to watch the Americans' response when the consequences of their failure to manage the crisis materialize. Our supply sources will then be decreased for the many products transiting through or delivered from the United States. Already, many imported goods are much more expensive, mostly as a lower Canadian dollar significantly reduces our ability to pay for these imports.

In a week or two, economic and financial data to be released worldwide will confirm many of the fears of disruptive scenarios anticipated by the stock and bond markets. These upcoming data will be alarming and will further reduce consumer and business confidence.

The virus sharp rise and the slump in the economy will compete for media headlines, and the health crisis could become an economic crisis that will slide into a confidence crisis. There will be great pressure, notably in the United States, to relieve preventive measures, whereas precisely tough decisions will have to be taken, for example, to shut down many public and private services for several weeks or months, or to close non-essential factories, as Italy and several other countries have just done. Already, in the United States, prominent columnists are proposing crisis recovery scenarios and targeted vertical strategies of containment and social distancing, rather than the horizontal strategy adopted by all affected countries.

Once again, developing less pessimistic scenarios is feasible, but an economic policy must be established now by killing three birds with one stone: managing the crisis, investing without delay to strengthen key sectors of the economy, and preparing for the future with a long-term vision of our society.

1.2 POST-COVID-19: FIVE FINDINGS

Admittedly, in the aftermath of this crisis, things will never be the same again. In this respect, five findings already prevail.

More Governments

As much as governments will be heavily indebted, they will be omnipresent in our society and in the economy, as the crisis will have urged them to take on more responsibility for health, food and logistics regulations, and in the overall private sector.

More E-Commerce, Teleworking, Digital and Robotics

Just as a necessity, our society will become more digital. Many economic sectors will be forced to switch to teleworking and Internet meetings. Ecommerce will be successfully tested in almost every sector, from education and health care to government services. Many business functions will have experimented with new ways of doing business; the entire food sector will be propelled into e-commerce much faster than expected; these "discoveries" will forever change the business models of all organizations. To effectively support this digital activity, logistics, inventory management and the transportation of food and food items will require the use of state-of-the-art digital management tools, while taking advantage of robots and driverless vehicles. Supply chains will necessarily have to be more robust and efficient. For example, Amazon is a highly efficient digital company because it is also a large logistics, transportation and distribution company.

As much as governments will be heavily indebted, they will be omnipresent in our society, in the economy, as the crisis will have urged them to become more involved in health, food and logistics regulations, and in the overall private sector.

A Push Toward Deglobalization and Possibly Inter-Provincial Trade

Although it has a variable structure based on sectors and regions, deglobalization has already begun. All economies will seek to become less dependent on other regions for essential goods and services. For Quebec, as for the other provinces and the federal government, this will be an opportunity to review the collaboration and governance modes. For example, the Atlantic provinces, like the Western provinces, could be prompted - or even forced - by their financial conditions to merge a number of public services. New trading platforms in the energy and food sectors could emerge in Canada. A federal-provincial strategy in the medical and paramedical equipment sector will be required to reduce our dependence on the United States and other foreign countries in this sector. And trade within Canada should become much more important.

Stronger Environmental Concerns

The ecological movement and the debate on energy and economic transition will return in force. The scarcity of economic and financial resources will cast a different light on consumption, production and trade. As it occurred during the Great Depression, the current crisis will take its toll on citizens' attitudes and behaviours. People will become aware of the value of moderation and restraint, of the importance of savings and reserves, and of our ability to obtain supplies close to home. In a nutshell, we will have taken a step toward greater collective voluntary simplicity, which will have a definite effect on the level of demand and, therefore, on economic growth. Also, this crisis will have expectedly highlighted inequalities in terms of wealth and, unfortunately, survival, and is causing major political and social disruptions.

New Forms of Private and Public Cooperation

The challenges will be so great and so much more complex in nature that societies will invent forms of private and public collaboration to move faster and use the tools of the digital world and artificial intelligence. Not surprisingly, new public-private projects in villages, towns and districts, numerous public-private joint ventures, and new platforms for exchange and sharing between governments, businesses and users-consumers will emerge. The war against COVID-19 will give rise to several innovations.

A Long-Term Vision of a Crisis Recovery

Based on this vision, our society will be:
- set up with a
"strategic reserve"
to deal with future
crises;

- supported by robust regional and sector-based ecosystems;
- driven by a decentralized government.

It is therefore important to manage the crisis with a vision of how to recover from it. Before reviewing some short-term initiative options, we will address three components of a long-term vision for Quebec's future.

Based on this vision, our society will be:

- set up with a "strategic reserve" to deal with other crises;
- supported by robust and efficient regional and sectoral ecosystems, capable of managing the trifold—demographic, ecological and digital— transition our world is facing;
- driven by a government decentralized, with regions relying on digital and artificial intelligence tools to reach out to citizens, to provide them with services and to revamp democratic engagement while respecting their privacy.

2.1 A "STRATEGIC RESERVE" PLAN

The ice storm crisis, the September 11, 2001 shock, the conflicts with our Aboriginal nations (Oka and Wet'suwet'en), the 2008 financial depression, the 1996 floods in Quebec's Saguenay region and the 2019 floods – which affected more than 300 municipalities in Quebec – and now, this health crisis... These events are admittedly recurring and frequent, and even though each of these crises has its own features, they eventually share many common characteristics. In fact, they all require a similar set of responses, since they all rely on the same set of solutions aimed at covering the basic needs of the population: security, shelter, health care, food, energy and heating, economic means. However, since we must rebuild our crisis management capacities with each occurrence, our responses are neither optimal nor fast, and are often very costly in many ways. Appendix A of this document briefly describes the main parameters of this plan, and its implementation must now influence some of

the short-term crisis recovery initiatives. The intent here is to provide strategic reserves, in addition to the logistical, organizational and human capacities needed to execute the plan as required.

2.2. ROBUST AND EFFICIENT REGIONAL AND SECTOR-BASED ECOSYSTEMS

Before experiencing the full blow of the digital revolution, the industrial development policies of Western countries had evolved for more than sixty years around two successive approaches. Until the early 1990s, government industrial development policies were primarily designed to boost the creation of new businesses and the growth of SMEs around geographic or industrial clusters, with the main emphasis on government assistance in the form of grants, tax credits or financial support. The policies were also aimed at stimulating the growth of venture and development capital funds throughout the territory while promoting research and development of innovative products through subsidies. Intellectual property policies and overall economic policies had a favourable bias toward new technologies in an approach that sought to establish a fiscal and regulatory framework fostering the development of start-ups, in the hope that this would be conducive to the emergence of high-growth businesses, and eventually medium-sized companies, and then large and then perhaps very large corporations.

The focus of an industrial business development policy has shifted from the business to the development ecosystem of a sector or region where a business evolves from birth to maturity, and even to sustainability.

However, in the light of academic research and the experience of several countries, the second phase of industrial policies quickly turned around the key concept of the business development ecosystem¹. The focus of an industrial business development policy has shifted from the business to the development ecosystem of a sector or region where a business evolves from birth to maturity, and even to sustainability. Thus, after several experiences, an ecosystem for the development of a sector or even a region has been recognized to extend to:

- a specific number of large companies "connected" with the rest of the world because they are world-class businesses and ideally operate in high-value-added industries;
- a number of public institutions and departmental agencies;
- a number of public institutions and departmental agencies;
- a university and some university and college-level research centres;
- a community of venture and development capital investors;
- a group of successful and unsuccessful entrepreneurs, and therefore, experienced business people;
- institutions capable of hosting and onboarding immigrants who are adding to the student community, the labour force and local entrepreneurs;
- quality consulting firms and experts who participate in a number of local and international expert networks;
- excellent local and regional suppliers for precision machinery, prototype construction, sophisticated testing, etc.;

¹ Mason, Colin and Ross Brown (2014). "Entrepreneurial Ecosystems and Growth Oriented Entrepreneurship". Discussion paper prepared for the workshop hosted by OECD entitled "LEED Programme and the Dutch Ministry of Economic Affairs". Retrieved from https://www.oecd.org/cfe/leed/Entrepreneurial-ecosystems.pdf.

- incubators and a community of start-ups;
- quality social, sports and cultural institutions involving leaders from all areas of civil society;
- sound physical transportation and communication infrastructures;
- a calendar of events to recognize the success and contribution of individuals and organizations to the development of a sector and a region.

If a key concept becomes the regional or sector-based ecosystem of business development, then the role of public policy is to connect the components of this ecosystem and support its development. Moreover, in the context of the knowledge economy and digital transition, it is now recognized that ecosystems conducive to the emergence and development of digital entrepreneurs must be structured in such a way as to foster fast-growing businesses which, precisely because they have gone digital, can more quickly access the global market. The focus is not only on start-ups as such, but also and rather on scale-ups and even grown-ups. Regions and sectors are seeking to attract these "digital entrepreneurs", to establish consistent and productive relationships between the stakeholders in this ecosystem, and to provide strategic support, mentoring and advice; they also need to attract several diversified funding sources and facilitate the recognition of digital innovations. This type of ecosystem progresses best when it is driven centrally by one or two companies with strong technological and digital content, and can benefit from the presence of these successful entrepreneurs who want to share their experience with younger people. In addition, the back and forth between academic research, companies and suppliers normally creates a dynamic of sharing discoveries, while ensuring a high level of connectivity between the members of this ecosystem and their partners elsewhere in the world.

Each Quebec region already has a development ecosystem; all regions are home to several interlocking sector-based ecosystems. For example, several regions benefit from the presence of one or more large companies, a university or colleges and quality suppliers.

In fact, each Québec region already has a development ecosystem; all regions are homes to several interlocking sector-based ecosystems. For example, several regions benefit from the presence of one or more large companies, a university or colleges and quality suppliers. The Montreal region already has very well-structured ecosystems in such sectors as artificial intelligence, finance, aeronautics, life sciences and others; the Quebec City region has established a high-quality ecosystem in the areas of insurance, optics and related technologies; the Saint-Hyacinthe and Mauricie regions are undeniably well equipped in the agri-food sector, as are the Beauce and Bois-Francs regions with their exporting manufacturers. These regional ecosystems were rolled out through great efforts from the regions and with the help of our governments, but in a context that was not the one we are in today and that is now characterized by a real race between countries and regions to attract and retain talented people and digital and artificial intelligence entrepreneurs, who are essential players in a knowledge-based economy that is facing an ecological emergency.

2.3. A "SMART" GOVERNMENT DECENTRALIZED AMONG DIFFERENT REGIONS AND SECTORS

The current crisis is forcing us to distance ourselves socially, urging us all to realize the importance of our regions and local markets. This is where a smart decentralization of certain government functions among regions and sectors makes sense and helps us win the race to make the digital world a source of growth and development. In addition, as a society, we must successfully manage the challenges of the trifold - demographic, digital and ecological - transition.

For all these reasons, we must shift from a vertical economic development approach, where government agencies are at the top of the pyramid and regions and other ecosystem components are at the bottom. Rather, we must benefit from the necessary and unavoidable digital transition of the government and its agencies and departments to focus on the user-citizen and to "decentralize and deconcentrate" a large number of responsibilities to the regions. Much of the remote work efforts during the crisis will have served to change cultures and working models. Through a digitization of the relationships between its agencies and departments and its users-citizens, a government can aptly improve decentralized management, because digitization produces all the relevant data to carry out the management and audit controls required for a sound accountability. Governance experiments using digital technology (GovTech) elsewhere in the world are relevant here. The digitization plan for the decentralized and regionalized government must consider the components and architecture of the digital economy and artificial intelligence, in order to benefit from this shift and reinforce the existing local players and, eventually, to create new players as partners of local players, or even as competitors where necessary.

The procurement policy of a digital-based government is a unique opportunity to boost economic development through a definition of this policy in terms of its industrial policy objectives and a strategic incorporation in the architecture of the digital economy and artificial intelligence providers.

In addition to countries and numerous clients, this architecture of providers to the digital economy includes six types of structuring players².

Rather, we must benefit from the necessary and unavoidable digital transition of the government and its agencies and departments to focus on the usercitizen and to "decentralize and deconcentrate" a large number of responsibilities to the regions.

² Greenman, S. (May 6, 2018). "Who Is Going To Make Money in AI? Part 1". Towards Data Science. Retrieved from https://towardsdatascience.com/who-is-going-to-make-money-in-ai-part-i-77a2f30b8cef. Greenman, S. (April 7, 2019). "The Secrets of Successful AI Startups. Who's Making Money in AI? Part II". Towards Data Science.

- a. First, very large companies in all industrial and service sectors. These include large financial institutions, large manufacturing groups, transportation and other companies, and large logistics and service companies. Each of these major players is a centre of excellence in digitization and artificial intelligence to meet its own needs, but most of these organizations work in partnership with other players in their industry to sell them solutions and applications.
- b. Digital and artificial intelligence solution providers by industry, such as health care and agri-food, education, transportation, legal, finance, etc., have a wide range of applications in their industries. They are referred to as "vertical" vendors because they are industry-oriented.
- c. Suppliers providing solutions to businesses in all sectors. Included in this category are specialists in applications for customer management, human resource management, cyber security, specialized tooling, etc. They are referred to as "horizontal" vendors because they specialize in business functions across all sectors.
- d. Model and algorithm vendors specialized in the development of functionalities such as facial recognition, optics, voice recognition, semantics, in short, those at the heart of research and development in artificial intelligence and big data. As a rule, there are more scientists and researchers here than with other providers.

Retrieved from https://towardsdatascience.com/the-secrets-of-successful-ai-startups-whos-making-money-in-ai-part-ii-207fea92a8d5.

- e. Providers of platforms and infrastructures: they supply, for all these stakeholders, cloud computing and data processing services of all kinds.
- f. Finally, suppliers of smart chips and other components essential to the development of digital and AI.

It will be relevant here to clearly identify the components of this architecture in which Quebec and Canadian players have a role, so the government digitization becomes an opportunity to reinforce the local players while supporting regional and sectoral ecosystems.

Each region must be supported to adopt a strategic plan to strengthen its ecosystem so as to create a virtuous circle of innovation and development, capable of retaining and attracting the talented people a region needs to appeal to medium and large businesses.

Digitizing the activities of the Government of Québec by decentralizing and deconcentrating them while asking the regions to adopt a strategic plan to reinforce their development ecosystems and an ecological transition plan means launching several pilot projects requiring a strict and dynamic management action. However, this exercise will result in new collaborations between businesses from here and elsewhere and will increase the connectivity of each region of Quebec not only with other regions, but also with several countries. All will want to benefit from foreign experiences to succeed in their project to decentralize and enhance their ecosystems. In fact, this regional process of creation and innovation will lead a region to a digital shift. Each region will then find its niches and comparables and determine its ambitions. Cooperation and interconnectivity will be at the core of the regional digital and ecological shift.

Obviously, moving toward a true regionalization and deconcentration of the Government of Quebec's activities while digitizing a very large part of its relations with citizens, taxpayers and users implies a desire to give leadership to the regions, their citizens and their leaders. This is a bold vision, based on the conviction that the digital shift provides a great opportunity to bring taxpayers closer to their public services, while enabling them to play a greater

role as citizens in the digital and ecological transition and in reinforcing economic and social development ecosystems. Such an exercise should therefore contribute to a sound democratic health of our regions, in bringing the citizen closer to the taxpayer, the taxpayer closer to the user and the user closer to the citizen.

PART THREE

Initiatives to Help Manage the Crisis While Preparing for the Future

The four proposed initiatives share the common features of providing immediate assistance in managing the crisis, supporting our economies in almost all regions and better positioning some key sectors of the world when COVID-19 is behind us. These initiatives are therefore targeted projects to strengthen the strategic reserve in times of crisis management, reinforce our regional and sector-based ecosystems, and decentralize and deconcentrate government activities through a digitization of a larger part of governmental activity.

3.1. THE MEDICAL AND PARAMEDICAL SUPPLIES AND EQUIPMENT INDUSTRY

If the war against the virus lasts several months or even quarters, our first line of defence will be under fire in every respect. The demand for staff will be booming, as will the demand for hygiene products, medicines, beds, blankets, rooms for the sick, artificial ventilators, and so on.

Identifying the change in this demand by region and by service centre will be essential, as will the need to analyze the gaps between these multiple requirements and the system's capacity to deliver the right things at the right time and in the right places!

Both this supply chain response and the capacity of the first line of defence will need to be managed. This management effort is in itself a huge challenge requiring some available state-of-the-art expertise to be available.

These initiatives are targeted projects to strengthen the strategic reserve in times of crisis management, reinforce our regional and sectorbased ecosystems, and decentralize and deconcentrate government activities through a digitization of a larger part of governmental activity.

A genuine local public health and medical and paramedical supplies and equipment industry will be required.

Most importantly, as soon as the crisis is over, all public health systems will need to be more autonomous and less dependent on the United States, Germany and China. They will all want to have a "breadbasket" of health products and tools to deal with future crises.

A genuine local public health and medical and paramedical supplies and equipment industry will be required. We now need to create a "virus warfare industry", which will be a significant component of our future public health sector. We need to strengthen our line of defence while at the same time reinforcing our health sector and accelerating its digital shift.

With a few rare exceptions, the medical and paramedical equipment industry in Quebec and Canada is relatively small and we have to import a very large portion of our equipment from the United States, Germany and China.

Initiative 1: The Medical and Paramedical Supplies and Equipment Industry

Clearly, an initiative must be implemented in Quebec with the cooperation of other provinces and the federal government, to establish a public-private strategy through which this industry can be developed and reformed. Production capacity must be built and a real "breadbasket" of equipment and supplies must be built up to be used to manage the next crisis.

3.2. A SMART AND SAFE AGRI-FOOD INDUSTRY

When consumer confidence is shaken due to job losses, lack of income, financial losses and, in this case, the many losses of freedom related to containment, we can expect a drop in demand for goods and services. After replenishing their supplies of essential products, consumers will adopt behaviours marked by prudence, moderation and savings. These new behaviours will have long-lasting effects on consumption and spending levels, but they will also change the values sought in products. In addition to increased mistrust and more doubts about the quality of products, there will be a greater quest for quality and, above all, a greater demand for food safety. This change in behaviours will force all governments to review their food safety, security and traceability standards. There will be zero tolerance for food fraud. In addition, as social media have already mentioned, terrorists may be tempted to resort to food poisoning.

As a normal reaction, consumers will want to trace the origin of products and their composition. Failing detailed information to trace the origin and components, we should, here as elsewhere, witness an increased demand for local products. This quest for food safety and local products will also occur among Canadians in other provinces and in the USA.

This will create fertile ground for even more protectionist behaviours with political leaders, and the reopening of our borders could prove very difficult and could even be delayed for several quarters after we win the war against COVID-19.

This change in behaviours will force all governments to review their food safety, security and traceability standards.

In short, the traceability of grown and processed food will not only be an asset but a necessity if we want to sell our products in Quebec and elsewhere. This traceability will provide customers with the place of origin (local), the list of ingredients used (safety) as well as production methods and any other relevant information.

Part of our agri-food industry has already adopted traceability instruments, but many sectors and businesses have not yet gone digital and are not robotized.

Initiative 2: A Smart and Safe Agri-Food Industry

Similar to other Canadian provinces, Quebec can capitalize on a well-developed agri-food industry; however, this industry must quickly go digital and introduce stricter safety rules for quality control and food traceability. In summary, it must introduce rules to make supply and distribution chains more efficient and allow a safe transition to electronic commerce in the food sector. A task force must be set up to address this project.

In addition to these two initiatives in the medical and agri-food sectors, two other self-prevailing projects will be added: one will deal with logistics infrastructure and the other with the strategic reserve.

Initiative 3: A More Robust and Smarter Logistics Infrastructure

The robustness of our supply and distribution chains will be tested during this crisis. Our transportation companies, harbours and logistics systems will be overloaded. Meanwhile, there is a great opportunity to digitize, robotize and make every component of our supply and distribution chains smarter. A task force must be formed to address this project.

The robustness of our supply and distribution chains will be tested during this crisis.

Initiative 4: The Strategic Reserve

This strategic reserve should be viewed as a web of pre-identified and consolidated resources in the master plan for our "reserve" and should be managed under the leadership of Emergency Preparedness. Consisting of food, equipment and various human and material resources, this "breadbasket" would be partly virtual; we could also rely on warehouses with specific contents and, notably, on the warehouses of major suppliers and distributors, in addition to strategic "shielded" supply contracts with external suppliers. This "breadbasket" would to a large extent be decentralized in the regions to be as close as possible to the populations to be served. Appendix A sets out the work plan for this project, which should be set in motion as soon as possible, since it is not impossible that it could be used in the coming quarters.

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CONCLUSION

One of the sectors that will be most transformed by this crisis will be the public sector, both in terms of the health care and education systems and in terms of services to citizens and businesses. During this crisis, remote working, remote learning and remote service delivery will have advanced more than ever, as new ways of doing things will have been discovered, tested and even improved. Returning to normal cannot and should not mean to resume the same behaviours and business models as before the crisis.

This state of affairs provides an opportunity to accelerate the State's digital transition in all public services while reinforcing specific key industries such as equipment manufacturers in the fields of healthcare and medical research, the agri-food sector and the logistics and transportation sector. Building a strategic reserve is also a valuable response in the short, medium and long term. This crisis also provides us with an opportunity to develop a plan and mandate the regions to consolidate and promote the development ecosystems of their public and private sectors, through an acceleration of the government digital transition and the regionalization of several of its functions and activities. This unprecedented health crisis provides us with a great opportunity for economic and democratic development. We definitely cannot miss this opportunity.

Appendix A – A STRATEGIC RESERVE PLAN

By Bernard Dorval, B.Sc., Act, FCIA (retired) March 25, 2020

After experiencing crises caused by ice storms, terrorists (September 2001), Aboriginal Nations (Oka and Wet'suwet'en), the financial market (2008) and floods (Saguenay and 2019), we are now facing an unprecedented health crisis. The time has come to realize these events are:

- recurring and frequent;
- but they all have their individual specificities, and so we mistake them as unique events;
- therefore, they have a lot more in common than what they might suggest at first glance.

Actually, these events require a common core of similar responses and all require solutions to cover the basic needs of the population (security, shelter, health care, food, energy and heating, economic means). However, each time, the response has to be largely rebuilt, which is neither optimal nor quick, but costly and inefficient.

These crises can be divided into four categories:

- Natural disasters (wind, ice, floods);
- Geopolitical disasters (wars, terrorism, social or ethnic instability);
- Economic disasters:
- Health disasters.

Whatever the nature of these crises, they require common responses because their effects at the highest level affect the six basic needs of the population mentioned above. In addition, there are more subtle needs specific to each event, such as sandbags in flood events.

Based on this reality and the experience of the current crisis, we recommend a major post-crisis initiative: the creation of a "strategic reserve" to at least partially protect us from breakdowns or decisions made by others, while speeding up our ability to respond to the crisis - and probably at a lower cost. This "strategic reserve" would involve the creation of:

- a) A real and virtual food "breadbasket";
- b) A health and medical "breadbasket";

- c) A reserve of hydrocarbons (oil, gas) and all that is required for driving, heating and production;
- d) A list of essential items, i.e.:
 - i. Specific real estate resources (hotels, sports centres, universities or educational institutions);
 - ii. Production infrastructure (factories, refrigerated warehouses, etc.) and supply chain infrastructure (call centres, transportation companies) that can be requisitioned and used temporarily to manage a crisis;
 - iii. The necessary intermediaries, systems and infrastructure that will act as conveyor belts for the money that is to be made available to individuals (banks, cash registers, post offices, etc.).

The owners of such equipment and facilities would receive a standby fee or a reimbursement of part of their development costs for their contribution to this effort.

- e) A bank of active workers and retirees classified by speciality (a kind of voluntary and compulsory civilian service in times of crisis) which would, in effect, constitute a "reserve" of human resources;
- f) Finally, a system for providing money to citizens quickly through digital means.

This "strategic reserve" should not be seen as a series of warehouses, computer back-up centres or parked fleets of trucks, although at least some of this infrastructure may be required to establish the reserve. Rather, it should be seen as a web of these pre-identified and consolidated resources in the master plan for the "reserve" and managed under the leadership of Emergency Preparedness. The "breadbasket" of commodities, equipment and other human and material resources would in fact be virtual, a combination of dedicated warehouses (but mostly those of major suppliers and distributors) and strategic "shielded" supply contracts with external suppliers. This breadbasket would also be largely decentralized among the regions to be as responsive as possible to the needs of the population.

This approach has a cost, but it also offers several benefits:

- a) Economically, it entails lower crisis management costs which, as we have seen, are recurrent and seem to be building up;
- b) This investment effort can also be used to provide Quebec and Canada with better infrastructure and greater production capacity. Our American and French neighbours do not hesitate to indirectly subsidize many of their strategic industries through their "war effort". The "strategic reserve" can be seen as a means equivalent to this tactic;

c) At a social level, this project can help reinforce the connections between individuals, businesses and government by bringing them together around a social project and a continuous activity, rather than rallying society only in times of crisis. This is an important benefit in terms of cohesion and accountability of the overall society, not to mention a potential economic asset in positioning itself as a leader in crisis management. We can cite as examples two countries with a larger population than Quebec, who have built their economies on a kind of fabric like this one: Israel and Switzerland. Economically and politically, these countries are doing much more than their weight on the international scene.

To those who would be tempted to dismiss this concept, we can suggest thinking over the following question: what would happen to our world tomorrow morning if an event completely different from the one we are familiar with—although a very real possibility—occurred, such as a magnitude 7.8 earthquake along the St. Lawrence Valley fault line?

Therefore, we would be well advised to have a plan for a "strategic reserve" to recover from the crisis, which is a productive way to invest the money that will be needed to restart the economy anyway.

We are not at all suggesting that detailed crisis management plans are not already on the boards of the civil authorities and that leadership resources are not provided. Rather, the "strategic reserve" referred to serves to facilitate and increase these resources, and to transform the effort from a one-off sprint into a long-term marathon in a world where, unfortunately, crises are likely to increase.