MOBILIZING INSIGHTS IN DEFENCE AND SECURITY

MINDS

MOBILISATION DES IDÉES NOUVELLES EN MATIÈRE DE DÉFENSE ET DE SÉCURITÉ

Network Challenge Report:

COVID-19

Military personnel form up outside Résidence des Floralies de Lasalle during a departure ceremony, as part of Operation LASER , in Montreal, Quebec, on 3 June 2020.

June 2020

Introduction

In June 2020, amid the most severe global health crisis in a generation, the MINDS Program's Collaborative Networks answered a call for papers to help the Department of National Defence and Canadian Armed Forces (DND/CAF) identify and understand the COVID-19 pandemic's geopolitical consequences, lessons learned, and implications for the Defence Team. This report contains the Collaborative Network's efforts to examine three core issues stemming from the COVID-19 pandemic. First, the pandemic's impact on great power competition, economic prosperity, and political stability. Second, the lessons learned at home and abroad about anticipating, responding to, and managing public health crises; and the appropriate role for military capabilities in civilian-led response efforts. Lastly, the challenges and opportunities presented by the pandemic to the defence and other government portfolios, particularly in the areas of personnel, logistics and procurement, information management and technology (IM/IT), governance, planning, and operations.

Contributors

The MINDS Program currently funds six Collaborative Networks, each with a unique array of academics, experts, and specialists from across Canada. The contributing authors of this report include both established and emerging voices in the Canadian defence and security community. The work presented here is their own and does not represent the policy or opinions of the Government of Canada, Department of National Defence, or Canadian Armed Forces. Their notes have been included in the language they were received. The following Collaborative Networks are contributors to this report:

Defence and Security Foresight Group (DSF Group) – University of Waterloo

Network for Strategic Analysis – Queens University et Université du Québec à Montréal

North American and Arctic Defence and Security Network (NAADSN) – Trent University

Network on the Security/Policy Nexus of Emerging Technologies (SPNET) – Concordia University

Key Takeaways

Geopolitics of COVID-19

- **State Power Trip:** The pandemic has increased the importance and power of states, as the only viable actors who can manage nation-wide response efforts, secure critical supply chains, and provide economic relief to their citizens.
- **Disinformed:** COVID-19-related information has become a high-value target for malicious actors seeking to sow confusion, mistrust, and politicize the pandemic, with alarming consequences for domestic and international politics.
- **Great Power Competition:** The pandemic is accelerating shifts and destabilizing the balance of great power competitors; as evident in declining international cooperation, the politicization of the pandemic, growing tension between the US and China, and increased opportunism by middle and rising powers.
- **De-Globalization?:** Despite decades of rapid globalization, COVID-19 has stalled this expansion by causing borders to close, airplanes to ground, markets to contract, and international competition to rise.
- **Alarming Spikes and Flattened Curves:** Rising case numbers and a lack of leadership are weakening American soft power, leaving a vacuum to be filled by China, whose fumbled draconian response has managed to flatten the curve.

Lessons Learned

- **From Remote Work to Remote Life:** Remote work has become a 'new normal' for millions of people, with significant disruptions to work-life culture, information technology requirements, and the security of information.
- **Technology, Security, and Surveillance:** Technologies like artificial intelligence, contact tracing, and computer modelling, are enabling both the fight against COVID-19 and efforts to encroach on individual rights and freedoms.
- **Readiness, Resilience, and Reliance:** Security forces' support was necessary to maintain national, regional, and local resilience, but this reliance has raised questions about how and whether to call on the 'force of last resort' in the future.

The Defence Team: People, Roles, and Relationships

- **Choosing Battles:** The COVID-19 pandemic has forced governments to make difficult trade-offs between their foreign policy interests, economic prosperity, and public health.
- **Relying on Rangers:** With the Canadian Rangers taking on new roles to address COVID-19 in Arctic regions, ways to ensure Indigenous inclusivity, autonomy, and self-sufficiency must be explored.

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Part 1 – The Geopolitics of COVID-19

Key Questions

- How has COVID-19 changed the geopolitical landscape? What are the likely short- and long-term impacts of the pandemic on international relations, defence and security issues, political economy and society?

- How has the COVID-19 pandemic changed the nature of strategic competition between great powers, most notably between the US (and the West) and Russia/China?

- What, if any, are the potential impacts of aggressive disinformation operations targeting Western governments, including militaries, on future operations?

Canadian Joint Operations Command (CJOC) presents during the Rehearsal of Concept (ROC) drill on April 3, 2020 in preparation to deploy Canadian Armed Forces (CAF) personnel under Operation LASER in response to COVID-19
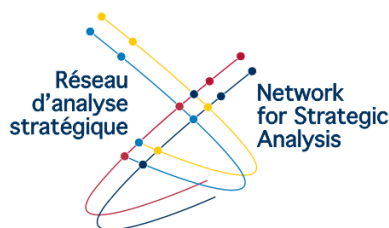
The Geopolitical Impacts of COVID-19

Stéfanie von Hlatky, Hannah Hollander, Justin Massie, Marco Munier et Sam Skinner

Context

The COVID-19 pandemic has considerable geopolitical impacts. It acts as a catalyst on several security and defence issues. This strategic note focuses mainly on three of them: 1) strengthening the state and its vulnerabilities in a context of de-globalisation, 2) accelerating competition between major powers, 3) as well as aggressive disinformation operations. We conclude with a series of recommendations for Canada.

Strengthening the State and its Vulnerabilities

The pandemic is helping to strengthen the traditional role of the state as protector of its people against external threats. By viewing COVID-19 as a source of insecurity and a lethal threat to its citizens, the state has had less difficulty in justifying and imposing extraordinary measures to deal with it, whether democratic or not.[1] Its sovereign prerogatives were thus reinforced.

On the other hand, the pandemic has exacerbated the internal vulnerabilities already faced by some states. In several federal states, disputes have arisen between different levels of government over the allocation of protective equipment. This tension between vulnerability and reinforcement is particularly felt in Europe. The European Union (EU) has suffered from its weaknesses, including risky decision-making and health policies depending exclusively on the member states. On the other hand, the EU could just as easily emerge strengthened after the COVID-19 pandemic. It could prove particularly effective in putting together a comprehensive response to the pandemic.[2] Faced with the United States disengaging from multilateralism, including from the WHO in full pandemic management, the EU would be well advised to promote multilateral mechanisms to deal with the pandemic. By proposing an integral and interstate approach to crisis management, the EU could take advantage of this opportunity to re-establish its legitimacy in a new era of international cooperation.[3]

More generally, the whole model of neoliberal globalisation is challenged by the pandemic. In these times of health crisis, the interdependence underlying globalisation is perceived as contrary to essential national interests. Faced with this concern, we could expect a relocation of certain production sites deemed essential, as well as an increase in measures to control human travel at the borders. Health security, and biosecurity more broadly, will emerge as key sectors of national security.[4] Like 9/11, the pandemic is treated as an existential threat and has fueled warlike rhetoric to confront it; it also legitimized a number of exceptional measures restricting individual freedoms.

Heightened Great Power Politics

The COVID-19 pandemic has not changed the nature of strategic competition between the major powers. On the contrary, it has fueled more aggressive rivalry between the blocs, by exacerbating existing tensions and by introducing new forms of competition. On the one hand, the inconsistent handling of the pandemic in the United States and its abdication from its traditional leadership role has eroded international trust in the country.[5] On the other hand, China and Russia present themselves as having the situation under control while resorting to increased cyber and industrial espionage.[6]

However, China's inability to manage the epidemic on its territory and the aggressiveness of its actions risk undermining its soft power.[7] In addition, increased Chinese influence in the Pacific could be compromised by China's economic difficulties after COVID-19, resulting in a decrease in Chinese aid and presence in the Pacific and beyond.[8]

America's disengagement and the rise of China pose serious challenges for democracies. They must adopt a common approach to manage American unilateralism and the increasingly assertive rise of China, while maintaining a certain flexibility to preserve international stability.[9]

Aggressive Disinformation Operations

Disinformation has played a significant role during the pandemic. For example, disinformation about how to protect and care for oneself poses significant health risks, as it feeds the drug trade or can lead to shortages of certain essential drugs for certain conditions.[10] Disinformation can further undermine the stability of a society and the authorities' efforts to fight the pandemic, in particular by discrediting government and scientific authorities.[11] These disinformation operations have led to the emergence of many conspiracy theories on the origins of the virus, challenges to containment measures, mistrust of Western democracies, future vaccines or the process of collecting personal information and other measures linked to contact tracing.[12] The strengthening of ties between Russia, China and Iran in this type of disinformation operation is indeed

noticeable.

Finally, the pandemic could represent a major turning point for intelligence. Health risks have been considered as security issues by intelligence services for many years, without making them their priority.[13] Intelligence services are therefore relatively ill-prepared to prevent and respond to these health risks. This is bound to change. Intelligence has the potential to provide an early warning of health risks, enabling effective and informed decision-making. By redirecting operational intelligence, valuable information can be accessed.

Recommendations for Canada

The COVID-19 pandemic has intensified American national sovereignty. Combined with heightened Sino-American competition and an increased domestic role for the CAF, this leads to a rethinking of Canada's stance in an increasingly multipolar world. Canada must adopt a position more independent from that of the United States, by seeking to rally the international community around common positions and to defend its interests resolutely. This involves exercising diplomatic leadership alongside democratic allies who share the same interests as Canada in order to preserve the liberal international order, as well as to avoid being trapped between Washington and Beijing. In particular, Canada should increase its defence cooperation with key partners such as Australia, Japan and South Korea.

Canada also needs to reassess its force structure and national defence priorities. On the one hand, the pandemic led to a lull in CAF operations abroad, the cancellation of several exercises on the national territory and a redeployment to Canada to assist civil authorities. However, a lack of resources seems to limit the ability of the CAF to meet all domestic needs, whether related to COVID-19, floods or forest fires. The necessary prioritisation of domestic needs leads to a review of the allocation of CAF resources and operations. This must include challenging some of the assumptions that have guided Canadian defence policy to date, including the maintenance of multi-purpose forces. The budgetary austerity that will follow the COVID-19 crisis will require choices to be made; these must be strategic and well thought out. To this end, a foreign and defence policy review is needed, ideally led by a joint (House and Senate) parliamentary committee, with the input of experts, stakeholders and Canadians. A new foreign policy statement – and the defence policy that will follow from it – must seek to rally Canadians around a new consensus on Canada's strategic orientation.

Canada has not been spared from the information struggles linked to the search for pandemic cures and vaccines and to the disinformation efforts of the major powers. An

additional effort must be placed on collection and analysis of health information capacities to improve prevention and provide relevant information for decision-making. The disinformation also impacted the CAF, suggesting an increased risk of the virus spreading among military personnel. Canada must therefore rethink its defence strategy to include health and pandemic risks and review its post-COVID-19 strategic positioning.

Disinformation risks increasing the Canadian public's distrust of political and scientific authorities by provoking movements against lockdowns, vaccination or medication related to the coronavirus, for example. To limit the effects of disinformation, the Defence Team should continue to use different social media platforms to inform Canadians about the pandemic, as well as increase its information verification capabilities or fund a third party to do it.

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Geopolitical Impacts of the COVID-19 Challenge

Jane Bolden

Summary

The United States has the potential to shift from being a security asset for Canada to a security liability.

The very fact that this potential exists represents a change in the geopolitical foundation of Canadian security policy and thinking.

The Covid-19 pandemic is not the cause of this change. Rather, the pandemic has been a catalyst, drawing together, consolidating and deepening pre-existing patterns of US behaviour at the domestic and international levels.

This development has the potential to change thinking about Canadian security primarily at the international level, but it also has implications for the national and regional levels.

Background

There is an important distinction between state power and state strength. State power is associated with traditional measures of military might. For the most part, determining state *power* is a straightforward exercise that involves evaluating a state's assets (military and non-military) and their ability to use those assets effectively to generate outcomes.

State *strength*, on the other hand, relates to a variety of factors that together speak to the socio-political cohesion of a state. Many factors come into play here. They include, inter alia, levels of political violence, the perceived legitimacy of the state amongst the population, the strength of and support for governing institutions (as distinct from support of the individuals leading them), and the degree to which national security threats are seen as existing at the domestic rather than international level.

One of the products of the catalytic effect of the pandemic is to lay bare the possibility that the United States is transitioning to becoming a weak state even while it continues its status as militarily powerful.

The United States may be moving from being a security asset to a security liability with these two alternatives situated along a continuum with considerable room for movement in between those two end points. The following discussion assumes that the United States is still close to the security asset end of the continuum but is no longer solidly positioned there, and that it may be moving towards the liability end of the continuum as a result of changes in its socio-political status that impact an assessment of its strength or weakness as a state.

Implications for Defence and Security Policy

Strong Secure Engaged (SSE), uses an analytical framework based on Canada, Canada's region, and Canada's international policy. That same approach is used here to evaluate the impact of this geopolitical change on Canadian security.

Domestic/National Security

Unless there is a significant and steep decline in the domestic situation within the United States that would bring it to the point of collapse, it remains the case that Canada's national security situation will not be significantly affected by changes in the strength of the United States as a state. Even as a weak state it is unlikely that the United States would pose a direct threat to Canada or Canadian territory. Even as a weak state the United States would continue to be military powerful, and would continue to view Canadian national security as an extension of its own security, not a threat to it.

Regional/North American Security

As with national security, issues of regional security are still likely to be dealt with cooperatively and jointly even if the United States moved further along the continuum towards weak state status. The ability to work jointly at this regional level is strongly desirable as it has an impact on each of the other aspects of Canadian security policy (national and international). Canada may, therefore, wish to augment its efforts to consolidate and strengthen the nature of this security relationship.

International Security

The most significant implications, at least in the short term, for Canadian security policy are at the international level. Here, the changing geopolitical situation in the US, has an impact on the foundation of Canada's pursuit of its strategic interests. These include a commitment to global stability, a rules-based international order and collective defence. All of these values have been under pressure in the past three years. The catalytic effect of Covid-19 has deepened the impact of that pressure by demonstrating that

assumptions about US commitments to those same values at the international level can no longer be taken as given, at least for the moment.

Once the threat of Covid-19 and the onset of the pandemic became clear, the United States did not take the lead internationally, either alone or in concert with allies. It did not move to use, advocate the use of, or strengthen existing international institutions to generate global responses to a global threat. Indeed, the Trump Administration took the opposite approach. They blamed, threatened and undermined international institutions, made major decisions impacting many other states without prior notification, and in some instances undermined the positions of allies. While this behaviour is not particularly new, as evidenced by the US decision in October 2019 to withdraw troops from northern Syria without informing its allies, the open and active rejection of an international leadership role, and international institutions seeking to create a global response to a global threat, is a new development in the post-World War II era.

It is possible, even tempting, to argue that many of the changes in US domestic and international policies of the past few years can be attributable to the specific politics of the Trump Administration. This idea contributes to the belief that if President Trump loses the election, we can expect the US to return to pre-Trump policies and attitudes. That possibility exists but it is not certain that it will be the outcome. Even if President Trump loses the election, three factors suggest the limits to the idea that a post-Trump United States would result in a return to business as usual.

1. How a state does things in the international arena matters. The US treatment of its allies and its lack of involvement in key international institutions, issues and conflicts in the past four years can not be quickly undone by a change in leadership.

2. US domestic political concerns are significant and will not be removed or resolved by a change in leadership. The COVID-19 crisis has crossed over domestic political fault lines including economic, racial and the state versus federal government divides. Each of these fault lines has been aggravated by the COVID-19 crisis.

3. The way in which the election occurs will matter a great deal. The Trump Administration has actively undermined federal institutions, as well as perceptions of the legitimacy of those institutions. The COVID-19 crisis provides an added layer of complication to the upcoming election, and an added tool for those who might wish to delay or question the election process. How the election

process plays out will be as important as the outcome of the election in assessing US state strength and US security policy after November 2020.

While much will depend on what happens in the next six months, the impact of the above analysis suggests that even leaving the upcoming election aside as a factor, the changing policies and policy situation of the US both domestically and internationally is having an impact on the global balance of power. In this respect one of the issues that has received considerable attention is the rise of China as a major international actor. When measured against China's, US military strength still puts it in a more powerful position. But the US decline in its state strength provides an opening for a longer-term possibility of change. The combined effect of recent events may prompt the US to reduce its role as global leader of ideas, alliances, and cooperation, either out of a desire to disentangle from international commitments or out of the need to focus more on pressing issues at home, or some combination of the two.

For Canada, this means that its efforts to promote and protect its interests may require a shifting of assumptions associated with the solidity of global stability, collective defence and a rules-based international order. Rather than assuming a solid foundation and seeking to protect and build further on it, Canada may now need to focus on protecting what exists and re-building to recover what was lost.

Assessing the Geopolitical Effects of the Coronavirus on Canada-United States-Asia Relations

Shaun Narine

Summary

The United States' mishandling of its response to the coronavirus pandemic is an important indicator of endemic institutional, political and societal weaknesses. The US is a rapidly declining hegemonic power. China has also been damaged by its response to the virus but it is still on track to emerge as the leading power in the Asia Pacific. Canada must recognize what the Covid-19 pandemic is indicating about the emergence of a multipolar world order and diversify its economic and political relationships and commitments in order to advantageously position itself for the future.

Introduction

This paper addresses three distinct questions related to the geopolitical effects of the coronavirus pandemic: what is the impact of coronavirus on American global power and influence? How has the pandemic affected the rise of China? What should be Canada's political and security responses to the emerging redistribution of global power? The arguments of this policy brief are the following: the US mismanagement of the pandemic is the latest, and perhaps most consequential, in a series of significant failures by the US state over the past 25 years. These failures demonstrate that the US is an unreliable and unsustainable global hegemon. The pandemic has also damaged China's standing in the world. Even so, China is likely to consolidate its position as the dominant power in Asia within the next decade. Canada needs to accommodate American decline, China's relative rise, and the emergence of a multilpolar world. Canada should respond to the changing global order by increasing its support for international institutions and develop a military capacity to protect its sovereignty. It should also develop economic and political relationships with as wide a variety of states as possible. Above all, Canada must avoid becoming embroiled in an American "new Cold War" with China.

The Effect of the COVID-19 Pandemic on the United States' International Influence

The US government's response to the coronavirus pandemic has been a spectacular failure. The Trump administration spent most of the first part of the pandemic downplaying its significance and refusing to prepare for it. When the pandemic hit American shores, the President refused to implement any coherent national response, refused to take responsibility for the chaos that followed, and then attacked the governors of different states and encouraged rebellions against essential healthcare precautions, apparently for domestic political reasons. The US government sought to divert attention from its incompetence by blaming other actors (notably China and the World Health Organization) for the severity of the pandemic. Most recently, all American states have begun "re-opening" their economies, despite the fact that at least 21 of them are seeing increasing levels of infection.[1]

The core of American "soft power" lies in the idea that the US has appealing ideals and practices that "work" -i.e., they achieve a desirable level of economic and social prosperity that make them worth emulating. The US has been especially successful in exporting its national myths and self-perceptions around the world through its cultural industries. Along with "hard power" – American military and economic influence – these factors have provided the foundation for American global hegemony in the post-Cold War period. Nonetheless, over the past 25 years, numerous global crises have been caused or exacerbated by inherent weaknesses in the policies and practices that the US has promulgated. The US has regularly utilized military force and failed to achieve its objectives. Thus, the US failure to manage the pandemic must be understood as part of this larger pattern of hegemonic dysfunction.

Some of the more prominent examples of these failures include the following. In 1997-1999, the Asian economic crisis was the result of policies of global financial deregulation promoted by the US. In 2001, the US invaded Afghanistan. That war is still ongoing and is heading towards a US military defeat. In 2003, the US invaded and occupied Iraq. That war was illegal under international law, destabilized the Middle East, created enormous tension between the US and many of its allies, and resulted in an unstable Iraqi state. The occupation was also grossly mismanaged. In 2007-2008, the US was the epicenter of the global financial crisis, another example of American financial deregulation contaminating the entire global system. Under Republican administrations, the US blocked international progress on addressing climate change. At home, US society grew increasingly unequal, divided and politically dysfunctional.

In 2016, Americans elected Donald Trump as President. Trump's policy platform was based on "America First" and the administration immediately implemented policies that were hostile to the established multilateral and international legal orders. The Trump administration dissuaded immigrants from coming to the US, attacked NATO, withdrew from the Trans-Pacific Partnership (TPP), demanded the renegotiation of the North American Free Trade Agreement (NAFTA), acted to cripple the World Trade Organization (WTO), imposed or threatened to impose tariffs against long-standing allies (including Canada), abrogated a number of major treaties and started a trade war with China that has now become an effort to cripple China's technological development. The US advocated an illegal "solution" to the Israeli-Palestinian conflict, attacked the European Union, decided to withdraw from the World Health Organization (WHO) during the pandemic, and used its dominant position in the world financial system to threaten its allies into acquiescing to policies that undermined their own interests (particularly with respect to the Iran nuclear deal). In a cautionary tale to all US allies, Trump blackmailed the Ukraine in an effort to get it to smear his presumed political opponent in the upcoming federal election. These actions sent a clear message to the international community that the US was not just an unreliable ally – it was also willing to abuse its privileged position in the world system to benefit itself at the expense of all other states. Beyond its foreign policy positions, the Trump administration also demonstrated a remarkable level of corruption and abuse of power at home.

Around the world, Trump is massively unpopular, though the international public tends to regard the US relatively favourably.[2] However, the Trump administration's failure to manage the COVID-19 pandemic is particularly revealing of how much American capability has declined because of political dysfunction. This is a powerful blow to a global power whose reputation is built on the presumed superiority of American innovation, industry and capability. The problem will not end with the end of the Trump regime.

The Trump administration is the culmination of decades of political and social deterioration in the US. Congress is meant to hold the President in check; however, extreme partisanship has meant that the Republican Party has moved in lockstep with Trump, no matter how far he has diverged from the established norms of his office. The Republican Party's rejection of global and multilateral norms has made it increasingly difficult for the US to be seen as a "benevolent hegemon" in the larger world. Repairing this damage is a long-term project and, even if Trump loses the next election, there is no guarantee that another Trump-like figure will not emerge in the future.

The US can no longer be seen as a state that "works". The fact that racial minorities in the US are disproportionately affected by COVID-19 and the ongoing social protests over police brutality further damage the United States' global appeal. The reasonable conclusion is that the US lacks the capacity to be a global leader. At the same time, there are no other states with the capacity or authority to take up the leadership role.

The Effect of the COVID-19 Pandemic on China's International Influence

China has not benefited from the American collapse as much as an observer might expect. China's initial response to the COVID-19 virus was inept. Local officials in Hubei province concealed the viral outbreak for political purposes. By the time the central government became fully aware of what was transpiring, the virus was spreading at an exponential rate. Nonetheless, China's final response was highly effective. It locked down hundreds of millions of people in a nationwide quarantine, shut down its economy, and brought the virus under control. A recent outbreak of dozens of people in Beijing has led to the re-imposition of strong quarantine measures in that city, but it is likely China will be successful in containing the spread there.

China has been roundly criticized for its defective initial response to the outbreak. Much of this criticism is justified, but it has also become highly politicized and propagandized by both sides. By the end of January 2020, it was clear that the COVID-19 virus was emanating out of China. Much of the world had the time to respond effectively. Many Asian states did exactly that. Vietnam, Cambodia, Thailand, Taiwan, Japan, South Korea and Singapore have all contained or completely crushed the disease. Many of these states acted based on their earlier experience with SARS. Yet many Western states, even with fair warning of what was coming, did not treat the virus with the seriousness it deserved.[3]

Even so, the "soft power" benefits that China can gain from its more effective response to the pandemic are limited. There are many countries that lack the resources and infrastructure to duplicate the extreme measures that China took to contain the virus. Many democratic states have dealt effectively with the virus, demonstrating that authoritarianism is not a necessary prerequisite to effectiveness. Moreover, as the virus spreads around the world and takes more lives, international anger at China will grow and it will become easier for local governments to blame China for their own lack of preparation. China can foster a small amount of goodwill if it provides states with needed medical supplies but this cannot overcome the fact that the disease originated in China and became an international problem because of Chinese governmental incompetence. Many Chinese supplies have proven defective, a reality that has further

damaged China's reputation as it tries to present itself as a good international citizen. Also, China does not possess the kind of "soft power" that the US does. China's "Confucius Institutes" are designed to explain China to the world and allay fears through understanding, but China does not have a universalist ideology it is trying to export to the world. China claims that it respects the sovereignty of other states and that it understands the struggles of the developing world, but these are not romantic ideas that inspire the average person and they are easily undermined by aggressive Chinese actions. Finally, as a matter of geography, China has numerous territorial conflicts with its neighbours. This makes them wary of a rising China and further limits and complicates China's global influence. The coronavirus pandemic heralds the emergence of a multipolar world, but it does not presage the coming of a new global hegemon.

The propaganda battle between China and the US around COVID-19 has involved the spread of mutual DDSF disinformation. The White House has spread the conspiracy theory that COVID-19 originated in a Chinese lab, despite no support for this position from US intelligence agencies.[4] China has responded with its "wolf warriors" - Chinese diplomats who have launched their own clumsy but aggressive misinformation and conspiracy theory campaigns on social media.[5]

Nonetheless, China does have distinct advantages. It remains the primary trading partner of most Asian states. US tariffs on China have strengthened China's regional economic ties. Recent US efforts to ban US technology, especially microchips, from being used by Chinese technology companies may cause other states to abandon American technology in order to continue working with China.[6] The perception in much of Asia of the US as a capable actor has been damaged by the US response to the COVID-19 pandemic in comparison to what China and other Asian states have done. China is at the heart of the region and it always will be there. On the other hand, the Trump administration canceled the TPP, indicating a lack of commitment to the Asia Pacific. There have been long-standing regional doubts about American staying power. If states are forced to choose between the US and China, they will choose China. China may not dominate the region; the Asia Pacific has too many contending actors. But unnecessarily making China an enemy and relying on American protection is a bad gamble for any Asian state.

How Should Canada Respond to the Changing Global Environment?

In the short-term, the single greatest national security threat that Canada faces comes from the United States. The American failure to manage COVID-19 means that every American traveler to Canada is a potential carrier of the disease. This is a problem that

will likely worsen with time. Thus, the Canadian-American border must remain closed to all but essential travel for the foreseeable future – possibly until there is an effective and widely-distributed vaccine that most Canadians have accessed or until Canada and the US can devise a reliable way to quarantine and test all travelers. Politically, keeping the border closed may be difficult, but it is absolutely necessary to ensure the health and safety of Canadians.

In the longer-term, Canada's interests are diverging from those of the US. The COVID-19 pandemic and the American response are clear indicators that the US lacks the political unity necessary to continue functioning as an effective hegemonic power. Canada must avoid being dragged into the growing American efforts to isolate China and undermine its economic and technological development. Admittedly, this will be difficult to do. The US is going to demand that Canada, its northern neighbor, follow its lead and not pose a "security threat". The Americans have a very broad definition of what a security threat may be and Canada could easily find itself paying a technological and economic cost for defying American pressure. However, this may be necessary.

Demographically, Canada is changing. Immigration to Canada is essential for the country's growth and economic future. For the past several decades, most of that immigration has come from Asia. Today, approximately 18% of Canadians have Asian roots. The single largest Asian demographic is Chinese.[7] If Canada cuts itself off from China, it will be cutting itself off from Asia. If, as seems possible, American efforts to cripple China's technological development backfire and lead to more countries abandoning American technology, then Canada will disadvantage itself economically and technologically going forward. Canada should pursue policies that diversify and expand its markets and economic/political contacts. It should not be following policies that increase its dependence on a declining hegemonic power.

In terms of security, this same argument applies. If Trump is elected for another term, US-European ties will be irrevocably damaged. Even if Trump loses the upcoming election, Europeans will need to remain wary of trying to resume a pre-Trump relationship with the US. US-European relations have been strained by two American Presidents in the 21st century (Bush and Trump). That is a pattern they cannot ignore. Moreover, Europe is intent on pursuing a more congenial relationship with China. If the US cannot accommodate that, then those ties will fray some more. The implications of this for NATO are unclear, but likely indicate a weakening of that organization's purpose and unity. If the Cold War Western alliance continues to unravel, Canada will be faced with difficult choices. NORAD and other necessary cooperation with the US can continue, but Canada should focus on building a military that can protect Canada's

borders, particularly in the North, where Canadian sovereignty is most challenged by the US and Russia.

Canada's military can focus on supporting international organizations, such as the United Nations. Most countries in the world support the institutions of international law and multilateral cooperation. A world of law is much more predictable and secure than one run by powerful states asserting their dominance over others through force and other coercive means. As a true multipolar world emerges, no one country will be able to exercise global hegemony. At the same time, global problems that require global cooperation will become more pressing. The paramount example of this is the existential threat posed by climate change. Under such circumstances, it is in Canada's interest to build and sustain multilateral cooperation and to resist fracturing the world into confrontational blocs.

For the Canadian security and foreign policy establishments, implementing some of these changes may be difficult. These establishments are deeply entrenched in an American worldview, borne of constant contact with the US and, in the case of security, training and building complementary forces with, the US military. However, as Canada's experience with the Trump administration has illustrated, the country cannot afford to be at the mercy of an antagonistic American leader. Canada needs to build the capacity to act independently of the US. The future of world economic and technological power lies in Asia. Canada is well-positioned to benefit from this, but only if it begins to prepare itself now.

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SPNET

Re-Defining Cyber Power - Post Covid-19

Dave McMahon

Background – Shift Happens

Cyber will be the most significant catalyst for change in the future and will be at the centre of acute transformation within the military. COVID-19 has accelerated that change.

"The next natural disaster of pandemic will trigger violent digital transformation, the result of which is that everything will be mediated by cyber technology. Meanwhile, our adversaries will choose this time to strike western democracies with cyber exploitation, misinformation campaigns of chaos while criminally capitalizing on the events and purposefully interfering within critical infrastructure sectors including: healthcare, emergency services, industry and defence. The capability of organizations to operate outside of the conventional office, adapt business processes, adopt next generation secure cyber technology and recalibrate to the new reality, will be put to the test."[1]

Considerations – Global Context

Changing demographics, resource competition, environmental stresses, globalization, economics, governance, urbanization, geopolitics, shifting power and the unprecedented advancement in science and technology are significant trends sharing the future security environment and every organization. This monoculture of singular trends can be forecast with a measure of certainly towards 2040. However, the emergent effect of convergent trends, technologies with black swan events such as pandemics and politics, will be more dramatic. Emergent effects that are derived from physical, human and cyber domains, now represent new risks to CAF; ones which are opaque to conventional military doctrine.[2]

The contest to control and influence the fabric of cyberspace will be as significant as the Manhattan Project and the space race. China and Russia represent pacing threats to Canada. Technologies like fifth generation mobile communications (5G), artificial intelligence (AI), Quantum Computing, Big Data and the Internet-of-Everything (IoE)

represent the vital high-ground. Bytes are as core to the business as bullets and battleships.

Military Implications

We are fighting a land, sea, air and space battle in the information domain. Cyber power is doubling every year, and the adversarial innovation cycle can be measured in weeks. Technology will drive: doctrinal change, operational plans, advanced cyber warrior training, mission assurance, platform and infrastructure protection.

This COVID-19 event is unlike a conventional natural disaster, when the military is called upon by the civil authority to deliver purely physical assistance. This time is different. National security and defence may require the military to counter foreign influence and disinformation, conduct active cyber defence during a time of intensified cyber attacks and provide more nuanced support to critical infrastructures under threat; including such sectors as healthcare, safety, telecommunications, finance and the defence industrial base.

"*State-sponsored actors likely are using the COVID-19 pandemic climate to dig for important intelligence, including how COVID-19 is affecting military preparedness*," warns a bulletin from Communications Security Establishment.

The Canadian-led NATO battle group in Latvia has already been the target of a pandemic-related disinformation campaign as well as sophisticated cyber attacks originating from Russia. Canadian Security Intelligence Service have been warning that threat actors likely will target organizations doing COVID-19-related research in order to steal intellectual property linked to the pandemic.

All the while, the CAF is undergoing its own dramatic digital transformation, adjusting to adaptive dispersed operations on a new terrain, and a rapidly expanding attack surface, while relying on civilian command control communications infrastructure whilst forming new partnerships with civil defence forces.

Competition, conflict and war between states is occurring on cyber terrain owned, operated and controlled by entities other than the CAF. COVID-19 has shown this acutely. The cyber security industry has detected an order-of-magnitude more attacks from nation-state actors against Canada, while circumventing direct military/security/law enforcement confrontation. Cyber is core to space platforms, ships will behave as floating data centres, aircraft will look like software in the cloud, and soldier systems act as fog computing. Fifth generation mobile communications (5G) will connect

everything-everywhere, all the time. Post COVID-19, remote communications over public infrastructure and personal devices is the new normal.

Mega cities will be the most densely sensored environments on the planet - with 1 million devices per square km. A handful of these devices will have more bandwidth than the entire Internet connectivity of the CAF today.

COVID-19 has triggered dramatic digital transformation, the result of which is that everything is now curated by cyber technology. Overnight, the network has been pushed out of central control to the edge (onto personal mobile phones) up into the cloud (collaborative tools) - off corporate infrastructure.[3]

Secure remote mobile cellular communications will be the defining technology for the CAF, while personal mobile devices will remain highly-susceptible to exploitation.

Our adversaries have invested heavily in dominating this technology.[4] It is likely that 5G will be deployed sooner than the full operational capability of major cyber programmes in the CAF. Thus, the CAF mission set may need to quickly re-calibrate for an Everything-on-5G World, where China is the most dominant global super-power.

Cyber power can only be understood in a global context.

Shift in Cyber Power

Governance poses significant challenges in a rapidly globalizing world. In the emerging future, governments must grapple with a new world order in which power diffuses among corporations, empowered individuals, civil society, criminal organizations, and peer and near-peer nation-states. Instability will likely spread rapidly as oscillations in power and public sentiment become more common and as borders become less relevant. The power-shift will be particularly acute in the cyber domain and will precipitate a re-adjustment of Westphalian models to a new construct.

Militaries, if they are unable to adapt and respond to power-shifts accelerated by digital empowerment, will find themselves overcome by non-state actors usurping national control. A few sophisticated individuals with access to the power of the cloud can effectively challenge Canadian defences.[5]

Today, our world is principally described by data, and subject to global influence at the speed-of-light. The sudden reliance on personal mobile communications by the public sector and military represents instability and risk where rapid technological convergence has created a frictionless state between the human terrain, the network and the Internet-of-Things (IoT). Open media, big-data, ubiquitous mobile communications and

the IoT are at the centre of identity, security, defence and privacy issues facing us today. Yet, in many countries around the world, open access to the Internet is Balkanized, blocked, censored, shaped, controlled and denied. Norms and legal framework struggle to keep pace with rate of change, or have failed completely. Platform providers, not governments will define cyber norms and laws.

Technological advancements could empower military leaders to engage adversaries with minimal overt involvement and precisely where the engagement results in the most favorable outcome. The covert action conducted in the cyber domain will be the 'invisible hand' that influences populations, markets, geopolitics, and military balance of power. Commanders may favor soft-power non-kinetic capabilities (cyber and influence) as alternate approaches to conflict resolution.

Conflict in cyberspace is asymmetric, unrestricted and irregular. Situational understanding and maneuver warfare in this domain will be vital for military and political advantage. Strategic listening and targeting will be tightly coupled across domains. Axiological targeting particularly in cyber space will become even more complex within the context of deterrence, escalation or retaliation. Cyber provides high-tech warfare at knife-point range.

On top of the inherent complexities and uncertainties involved in the cyber domain, a shared international framework of cyber deterrence would have to bridge cultural divides, force and network structures, national strategies and objectives, national and commercial level decision-making processes as well as concepts of proportionality. Attribution is likely the hardest problem for cyber but is also the most necessary for effective deterrence, active cyber defence and will be required by law.[6]

Findings

The CAF will likely find themselves involved in a hybrid, irregular, and asymmetric conflict fought on cyber terrain they neither own or control. In this future, leading with soft power, cyber and influence may be the preferred options. Strategic deterrence will need a credible active cyber defence capability in which to project power and influence globally and throughout Cyberspace in the defence of Canada.

There is no going back from the digital transformation precipitated by COVID-19. A good deal of military cyber infrastructure is critically dependent upon personal mobile communications, the Internet, public cloud and applications. Strong industrial partnerships will be essential to enable both defensive and offensive cyber operations.

Defining success and victory in the future will become increasingly difficult, but what is certain is that cyber will be at the core. An assessment of principal patterns and technology trends will provide a foundation and the examination of the character of future conflict provides a context for developing several credible views of the future.

Recommendation

Continued anticipatory intelligence, strategic foresighting, applied experimentation, modelling and simulation will be necessary to mitigate future risks beyond COVID-19. Purposeful investment in cyber defence science and technology innovation and industrial partnerships, will be required to keep pace rapidly evolving cyber mission and build a sovereign capability.[7]

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Part 2 – Lessons Learned

Key Questions

- What lessons can DND/CAF learn from Canada and other countries' response to COVID-19?

- What's the appropriate role for DND/CAF in managing and responding to requests for assistance?

- How can DND/CAF work more closely with other government departments and agencies, civil society organizations, and the communities in which they serve to prepare for and prevent the spread of infectious disease? Who are the key stakeholders with whom they should partner?

- How can DND/CAF contribute to Canada's global health engagement, in anticipation of health security becoming a larger problem in the future?

- Should there be a restructuring or re-prioritization of the collection and presentation of medical intelligence to DND/CAF leadership and other government departments?

- What vulnerabilities or dependencies revealed by COVID-19 require urgent action (supply chains, reliance on civilian health care, etc.?

Infantry soldiers with 3rd Battalion, Royal 22e Régiment, fold gowns in the laundry room at the Jean-Hubert Biermans long-term care centre during Operation LASER in Montreal, Quebec on 27 May 2020.

SPNET

Data Security and Remote Work in Wake of COVID-19

Whitney Gagnon, Julian Spencer-Churchill

Context

- As a greater number of both key personnel and supporting staff are moved to remote, working-from-home situations, the availability of information and real-time updates in ongoing situations becomes a key point of possible failure.
- Maintaining data security and access to information from remote locations without compromising security or creating new vulnerabilities in access becomes crucial.
- There is no doubt that both China and the U.S. will suffer a loss of legitimacy following the crisis due to failures to respond to necessities of the moment, and it is probable that an event such as a major data breach would have a similar effect on the DND/CAF.

Issues

- Increased reliance on remote / cloud data (increased remote access increases the potential gate ways and vulnerability points for security breaches).
- Security of virtual private network (VPN) access to sensitive information (authentication and identification of inappropriate use and /adversarial attacks).
- Real-time availability of information and support for individuals and teams overseas or on assignment.
- Recent spike in cyberattacks related to increased number of people working from home on unsecured systems (e.g. World Health Organization leak in April 2020).
- Need to identify / defend against compromised log-in information from phishing scams, key logging algorithms, etc.

Considerations

- Additional delay in receiving support information for individuals deployed or working overseas can pose a risk to individual safety, as well be deleterious to mental health during this time of increased operational stress.

- Biometric identifiers for authentication limit the possibility of unauthorized access but raise ethical questions regarding individual privacy and the ownership of biometric information, as well as opening the possibility of any data breach also compromising stored personal biometric information.
- Artificial intelligence (AI) can augment the ability of systems to identify unauthorized access by identifying adversarial attacks and aberrant access to data and systems through employee VPN connections, but may create disproportionate false positives in groups that are forced by pandemic conditions to work odd hours (i.e., individuals with young children, individuals with disabilities).
- Access to physical hardware supporting networks and cloud systems may be compromised by travel restrictions. Teams maintaining physical infrastructure may be at disproportionate risk of contracting the virus – requiring both increased care in managing IM/IT teams and need for additional redundancies within the teams to respond to potential illness/disability.

Options and Recommendations

- Maintain core of key personnel to provide technical and logistic support to remote (overseas and working-from-home) individuals and teams, and teams to provide rapid response for any IM/IT issues that arise.
- Recommend having multiple core teams working with disaggregated servers to provide real-time redundancies in the event of illness or compromise of teams or infrastructure.
- Enforce strict guidelines and training of personnel in order to reduce potential vulnerabilities and points of failure in individual systems. If possible, have access to restricted information operate within information "jails" on remote machines.
- Block chain encryption, due to the possibility of a built-in time delay on re-encrypting compromised information, can aid in early detection of indicators of compromise. Coupled with AI monitoring of data infrastructure may be able to significantly reduce the damage caused by cyber-attacks (e.g. emerging threats such as new advances in quantum computing – block chain encryption will not stop a quantum computing attack but will make one easier to detect and counter).
- Increased use of biometric identifiers in the VPN authentication process will reduce the possibility unauthorized access to systems (but will require clear guidelines regarding appropriate use and privacy, as well as appropriate encryption within the network holding the authentication data).

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NAADSN

North American and Arctic Defence
and Security Network

The Canadian Rangers and COVID-19

P. Whitney Lackenbauer, Peter Kikkert

Background

Commonly described as the military's eyes, ears, and voice in remote communities, the Canadian Rangers' leadership, organization, and training often makes them the de facto lead during local states of emergency. Examples include avalanches, flooding, extreme snowstorms, power plant shutdowns, forest fires, and water crises. Over the years, Rangers have played many roles, from delivering supplies to performing community evacuations. Their effectiveness in times of crisis flows from the relationships, networks, and partnerships that they have in their communities, their familiarity with local cultures, fluency in Indigenous languages, and the trust that they have earned from their fellow community members.

Under Operation LASER, available and willing members of the Canadian Rangers may be employed on full-time Class C service as part of an integrated CAF response. Contracts began as early as 5 April 2020 and will continue until end of August 2020.

When announcing the plans on 30 March, Minister of National Defence Harjit Sajjan explained that "these flexible teams are capable of operating as local response forces to assist with humanitarian support, wellness checks, natural disaster response and other tasks as required. Canadian Ranger patrols will be available to enhance our understanding of the needs of the northern, remote and Indigenous communities, and we will be ready to respond as required."

Discussion

The Rangers' activation fits within a broader "Whole of Government" approach. Placing Rangers on full-time service to support their communities shows a genuine commitment that the federal government, through this unique group of CAF members, is looking out for Northerners' needs by leveraging existing community resilience and capacity. Follow up work should be directed to systematically assessing how the Rangers perceived their

roles and the ways that they were employed; how their contributions were perceived by medical authorities and other stakeholders; and how other community members perceived their service.

Although Canadian Rangers are not trained in primary health care delivery, preliminary evidence suggests that they have proven well positioned to support those who are. They know their communities, who is most vulnerable, and where support and assistance might be required. Their myriad roles and tasks include:

- conducting wellness checks
- establishing community response centres and establishing triage points to facilitate the work of healthcare personnel
- setting up remote COVID-19 testing centres to facilitate triage
- delivering essential personal protective equipment and goods
- providing detailed information on COVID-19 precautions, including social distancing and handwashing
- delivering prescription medication to people in need
- providing food (including fresh game and fish) and supplies to elders and vulnerable community members
- clearing snow
- cutting and delivering firewood
- helping to unload and distribute freight from aircraft
- helping to screen air passengers
- conducting bear patrols
- harvesting and distributing traditional medicine
- monitoring the health and well-being of Junior Canadian Rangers and other community youth, and provided activities in which they could participate
- crafting masks
- serving as translators, and acting as a conduit between their communities and the government agencies involved in responding to potential community outbreaks
- gathering data and statistics on the current state of the community relative to pandemic relief efforts

Future access to additional information will further reveal how COVID-19 has exposed, and in many cases exacerbated, stresses, gaps, and vulnerabilities in isolated communities. For example, high rates of food insecurity in northern Indigenous communities are well documented, and travel restrictions associated with COVID-19 have exposed weaknesses in the food supply system in Northern Saskatchewan. Since April, more than 60 Rangers from the Ile-a-la-Crosse, Lac La Ronge, Wollaston Lake, and Fond du Lac Ranger patrols activated under Op LASER have helped their communities

by fishing and hunting, as well as ensuring that community Elders have adequate firewood, water, medications, and groceries.

During the COVID-19 pandemic, Rangers have continued to safeguard their communities in more traditional roles, including flood preparedness and relief operations, ground search and rescue, and fire watch. These activities demonstrate the ability of Ranger patrols to conduct concurrent missions, as well as their utility as a community-based Reserve force that prepares and provides essential humanitarian assistance to vulnerable populations in Canada so that other CAF assets can be directed elsewhere.

Preliminary evidence from Op LASER affirms that the Canadian Rangers are a strong example of how DND/CAF relationships can effectively build disaster resilience in at-risk, remote, and isolated communities with small populations, limited infrastructure and local resources, and little access to rapid external assistance. Ongoing investments in Ranger patrols have strengthened the resilience of over 200 Canadian communities particularly vulnerable and exposed to natural hazards, including pandemics.

Recommendations

A dedicated effort must go in to consolidating lessons learned and best practices, across all 5 CRPGs, that might be applied in future public health missions and other emergency situations. This work must be conducted by analysts with a deep understanding of the unique challenges and constraints facing isolated Northern and coastal communities, Indigenous peoples in the Territorial and Provincial Norths, and the Canadian Ranger organization. Measures of effectiveness or "success" in other parts of the country may not be applicable or appropriate.

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AI Use in Epidemic Modeling and Helping Governments Contain the Virus Spread

Neshat Elhami Fard, Kianoush Haratiannejadi, Rastko R. Selmic, Kash Khorasani

Summary

- Artificial intelligence (AI) can be used for early warnings and alerts about COVID-19. AI and related technologies can be used to isolate, track and predict how the COVID-19 pandemic will spread over time and space.
- AI can be used for data dashboards to visualize the actual and expected spread, diagnosis and prognosis of COVID-19 symptoms in individuals, such as to recognize individuals with fevers, identify voice changes, and determine lung infections, among others. It can also be used for development of treatments, vaccines, and social control.
- AI and unmanned aerial vehicles (UAV) solutions can be utilized with other technologies to transmit essential items such as medicine, medical samples, food, etc. to decrease human-to-human contact. Moreover, it can be used to support applications that provide solutions to disinfect, sterilize, and clean public places such as hospitals, clinics, government offices, etc. and reduce human-to-virus contacts.

Context

- The DeepMind sector of Google has used its latest algorithms and computational resources to identify the Coronavirus forming proteins.[1]
- The super-computers and cloud computing resources of various major technology companies such as Tencent, DiDi, and Huawei are being applied to fast-track the development of a cure or vaccine and model solutions for the Coronavirus.[1]
- **Contact tracing** is a technique where an application is installed on certain location-tracking devices to monitor and gather time-stamped location data on movements of a person.[7] To prevent outbreaks of COVID-19, this method has been implemented as a surveillance software in Canada, Singapore, and South Korea.

- **China**:
  - The Health Code surveillance system has been set up by the Chinese government. Based on an individual travel history, the length of stay in high-risk areas, and the probability of exposure to people with the Coronavirus, the developed system identifies and evaluates each person's risk of infection, and ultimately determines if the person should be quarantined or not.[1]
  - The Chinese start-up company Infervision has developed an AI-based solution termed InferRead CT Lung Covid-19. It has also implemented this solution in Europe to recognize Coronavirus infected individuals. Computed tomography (CT) images can detect lung infections caused by Coronavirus.[1, 2] Compared to other testing methods, this AI solution has benefits such as early diagnosis even for infected people without symptoms (asymptomatic), follow-up on the disease progression, and quantification of volume and density of the virus. Moreover, it has a high-speed response time, independence from other tests, laboratories and transportations, as well as more efficient triage, and consequently it reduces the risk of infections and high constant quality with impressive performance features.[2]
  - During the COVID-19 pandemic, Chinese hospitals are using autonomous Danish UV disinfection robots (UVD), produced by Blue Ocean Robotics, to learn the layout of hospitals, move autonomously inside, disinfect patients' rooms, and destroy the DNA or RNA of any microorganisms in range by powerful ultraviolet (UV) lights in order to decrease the human-to human contacts in these situations.[1, 3]
  - During the COVID-19 epidemic, Chinese hospitals are using Pudu Technology's robots in the catering industry to support medical staff.[1, 4]
  - SenseTime and SmartHelmets technologies that apply facial recognition and temperature detection have been used in China to recognize individuals with high fevers that may be carriers of the Coronavirus.[1]
  - The Japanese company Terra Drone uses unmanned aerial vehicles (UAV) to transfer medical samples and quarantine materials between hospitals and disease control centers in China with minimal risk and maximum safety and speed [5].[5] In quarantine conditions, these drones are used to patrol public locations, track non-compliance to quarantine rules, and for thermal imaging of violators of the quarantine rules.[1]

- **Italy**: Authorities are analyzing spatial data transmitted by mobile phones of Italian citizens. Using this analysis, the government can determine how many people have followed quarantine orders or determine and control the usual distances that they have traveled every day.[6]
- **Israel**: The country's internal security agency is utilizing a cache of mobile phone location data to pinpoint and label the people who may be exposed to the Coronavirus. Israel has previously considered this feature and functionality for counter-terrorism operations.[6]
- **England**: Food and small supermarket shopping consignments are delivered to residents of the city during the COVID-19 pandemic crisis using a fleet of six-wheeled robots that are known as Starship Technologies delivery robot.[3]
- **Rwanda**: The robots made by Belgian company Zora Bots have been used to measure patients' body temperature, recognize people without masks, observe abnormalities in patients' sound or look, and deliver medicine and other essentials to infected people.[3]
- **Canada**: AI can be trained and used to identify, track, and predict the prevalence of the COVID-19 disease. The Canadian startup BlueDot is a company that tracks the hazards of infectious diseases using AI. Several days before the Centers for Disease Control and Prevention (CDC) or the World Health Organization (WHO) announced their public warnings on COVID-19, the BlueDot's AI had alerted of the existing threat.[1]
- **Singapore**: The Boston Dynamics "yellow dog" which is equipped with a large number of sensors and cameras was applied to track and identify people who do not follow the quarantine and the social distancing regulations in Singapore. It also broadcasts pre-recorded notifications regarding the COVID-19 critical information to the public.[3]
- **South Korea**: In order to track the traveling, movements, and behaviors of COVID-19 patients and control the Coronavirus transmission chains, governmental agencies of South Korea are providing surveillance camera footage, smartphone location data, and credit card purchase records.[6]

Considerations

AI has the potential to confront and fight the COVID-19 as well as other future comparable pandemics and as an essential tool to solve various obstacles, challenges, and problems. However, using AI in this area has fundamental limitations. These shortcomings include:

- **Lack of data on COVID-19:** For training various AI models, there may not be sufficient historical data, open datasets, and similar real information on COVID-19 pandemic to work on and determine a reliable, verifiable, and valid solution for

diagnosis and treatment. [8]

- **Too much data (noisy and outlier data):** The presence of large volume of data on previous similar diseases is another problem with the use of AI. These old findings and outdated data need to be revised and updated and then evaluated before one can propose novel methods for diagnosis and treatment of the COVID-19. This process is time-consuming and costly. [8]

- **Existence of mutated Coronavirus:** According to daily news reports, the Coronavirus has shown new symptoms, indicating possibility of even minimal changes and mutation in the virus. Therefore, one of the challenges and issues in using the designed AI systems should be their capability to be adaptive and ability to update the models as may be required.

- **Data privacy concerns and public health essentials:** Another concern with the use of personal data to combat COVID-19 and the epidemic modelling using AI is that as soon as this pandemic has subsided the privacy of individuals' data may be compromised. Consequently, governments, private entities, and other stakeholders may be able to continue to use this information for other purposes. This fact has led to tensions between data privacy concerns and public health requirements and policies. [9]

Recommendations

AI and machine learning technologies can be applied to determine how the Coronavirus gene can mutate, how it is transmitted within a population, and how it is spread among young and old populations. Furthermore, analysis of the Coronavirus effects on individual's mental health in society can be accomplished through machine learning.

Face mask detection and social distancing monitoring in public places is an essential remedy in preventing the spread of COVID-19. The AI-based solutions can be developed by using computer vision, sensors, and facial recognition technologies.

UAVs and drones can be used to enter polluted areas to spray disinfectants. This can reduce risks of disease outbreak and diminish human-to-virus contacts. In this regard, multi-agent spraying systems that are commonly used in agriculture can be considered.

An AI-based belt equipped with different sensors can be used to monitor and store medical vital signs of individuals. AI models can use the data to diagnose and monitor patients' conditions. The technology can be used to observe various vital signs, namely

breathing rhythm, heartbeat rate, body temperature, coughing severity, among others. Moreover, this specific belt can monitor body behavior during the day and transmit the health information to appropriate health care professionals.

Blockchain technology enables individuals and organizations from any corner of the world to become part of a single interconnected network facilitating secure sharing of data. The tamper-proof feature of blockchain makes it resistant to unauthorized access and changes. Use of consensus algorithms and smart contracts minimize the potential for propagation of false and fake data. Blockchain-based applications can be used to monitor and control COVID-19 patients digitally through observing their symptoms and vital signs securely and reliably.

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Part 3 – The Defence Team: People, Roles, and Relationships

Key Questions

- How can DND/CAF adapt its support and service delivery to DND/CAF members and their families following COVID-19? What unique barriers or challenges did CAF members and their families encounter in managing the crisis?

- How can DND/CAF help to grow the economy following COVID-19? How can the CAF assist the recovery of Canada's defence and dual-use sectors which are essential to meeting capability needs or maintaining readiness/posture?

- How can the Primary Reserve and Ranger forces be used during public health crises?

- What are the impacts to *how* the CAF operate during a global health pandemic? What equipment, training, doctrine, capabilities, etc. would better prepare DND/CAF for future public health crises?

- What are the gendered and diversity implications of the Covid-19 pandemic on CAF members, both at home and in their work?

- What are the implications of COVID-19 for DND/CAF's capacity building efforts abroad? How should DND/CAF engage with partner forces to enable partner nation rebalancing post-COVID-19?

- What opportunities for innovation and efficiency have arisen from the COVID-19 crisis and what can DND/CAF learn from adaptations elsewhere in the public and private sectors?

Rangers from the Umiujaq patrol go around informing the public about COVID-19 and social distancing.
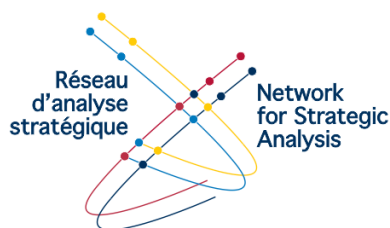
COVID-19 and Canada's Capacity-Building:

Security Assistance and Training in the Pandemic

Theodore McLauchlin

How has capacity-building, above all security assistance and training operations, been affected by COVID-19? What is likely to come?

- Because Canada's capacity-building operations occur in multilateral frameworks, the key question for Canada is how the pandemic has affected allied capacity-building operations.
- The pandemic has meant a general drawdown in security assistance operations. The pattern of operations that have been most affected appear to reflect two criteria: public health and foreign policy priorities.
- In the next year, we can expect further disruption to these activities with new waves of the virus.
- Over the longer term, the economic damage and the consequent limits to defence budgets may make capacity-building less attractive (if it is regarded as inessential) or more attractive (if it is seen as a good way of pursuing geostrategic interests at relatively low cost, compared to more robust interventions).
- Either way, allied military training activities are likely to refocus on core missions. Canada will face pressure to maintain its capacity-building in Latvia and Ukraine but it may increasingly lack multilateral frameworks for these operations in other settings.

Security assistance before the pandemic

Security assistance has been a key capacity-building activity for the CAF, increasingly so since the end of its major combat role in Afghanistan. This shift was of a piece with Canada's allies over the last ten years. Under budgetary constraints after the financial crisis of 2008, and responding to the exhaustion of largescale deployments, several states refocused how they addressed counterinsurgency, counterterrorism, and other security challenges, aiming to use their own forces less and build up partner forces

more. At the same time, Russia and China have made their presence increasingly felt in capacity-building, notably in sub-Saharan Africa.

It is not clear how much of an impact these operations have. Some existing research suggests that training does shape local armies' prevailing norms and values. Other research highlights its unintended consequences, such as a link between participation in the United States' International Military Education and Training program and coups d'état. Still other research suggests that capacity-building likely has little effect in counterinsurgency and counterterrorism in particular, because it is easily undermined by local authorities who divert training, arms and supplies to political loyalists or who do not permit the officers and soldiers trained to really exercise their training. Regardless of these concerns, however, capacity-building operations have been a popular policy tool, in part because it signals a willingness to do one's part without taking on an excessive burden.

Drawing down capacity-building under the pandemic: a signal of priorities?

Then the pandemic hit. COVID-19 led to the postponement of some capacity-building activities and the scaling back of others. Canada was far from alone here. The CAF, alongside its NATO allies, suspended its training activities in Iraq (Operation IMPACT). Canada also drew down its personnel in Ukraine (UNIFIER), and postponed a training session in Niger (NABERIUS). Similarly, the United States cancelled exercises around the world, including with key partners like South Korea and Israel, and the UK suspended its training activities in Kenya. At the same time, some other states maintained their capacity-building activities, with France notably keeping Operation Barkhane in the Sahel fully operational, and China highlighting that a training exercise in Cambodia in March and April went ahead as planned.

Two logics underpinned these decisions: public health and foreign policy priorities.

First, the local state of the coronavirus pandemic drove many of these decisions. An extreme example as the United States' decision in late March to suspend all training activities in any country designated Alert Level 2 or 3 by the Centers for Disease Control (CDC). In essence, in an emergency, it adopted a blanket public health criterion, delegated to a public health agency, rather than accounting for country-by-country foreign policy interests.

Second, however, these decisions reflect training states' priorities to an important extent. If NATO suspended its training activities in Iraq on March 20th but kept some training activities going in the Baltic States and Poland, it is difficult to see something

other than the alliance setting its priorities, signaling a commitment to member countries on the front lines with Russia over out-of-area operations.

Hence, keeping some capacity-building missions essentially unchanged demonstrates a commitment, and is meant as such. This goes for Operation Barkhane, which France has put at the centre of its foreign policy in Africa. Similarly, China made a fairly public show of maintaining its training operation in Cambodia even as it kept much of its own country shut down due to the pandemic. This had a couple of uses as a signal, both showing its commitment to a partner and showing that it—and Cambodia—were not especially concerned about the disease.

Some of Canada's choices showed its own priorities. For example, on March 26th, the day the Operation UNIFIER drawdown was announced, Latvia had more confirmed COVID-19 cases than Ukraine did. By maintaining REASSURANCE while temporarily drawing down UNIFIER, Canada indicated that capacity-building in Ukraine is not as important to it as in Latvia. Whatever the intent, this is the likely signal: a straightforward interpretation, and one that reflects Canada's commitment to a NATO member.

This is a reminder that the central consideration for Canada's capacity-building operations is what its allies are doing. These operations nearly always take place in some larger framework, whether UN, NATO or an ad-hoc partnership. And so Canada's decision in Iraq was part of a larger NATO decision. A reasonable conclusion an outside observer can draw is that Canada does capacity-building primarily to fulfill its alliance commitments, and secondarily to build relationships with specific partner militaries.

Impacts of COVID-19 on capacity-building in the short to medium term

Given that Canada's capacity-building efforts are part of broader multilateral efforts, used for Canada to contribute to collective efforts, the key question going forward is what its partners in training, like its NATO allies, are going to do. To get a sense of this, we need some assumptions about the pandemic and its overall effects in the next year. The following seem reasonable assumptions:

- The pandemic will stay with us. It will take at least until mid-2021 to develop a reliable vaccine, and even then it will take many months more for this vaccine to become widely available.
- Policymakers around the world will try to find ways of preventing and preparing for the next pandemic, for example through greater vigilance, more caution about travel and supply chains, and a greater willingness to adopt emergency restrictions sooner when a new outbreak occurs.

These assumptions imply that the concern about capacity-building operations will not go away. There may well be future waves of suspended operations. This will continue to make these operations harder to organize and plan, less reliable, and less attractive.

There are mitigation measures that Canada and other states have already put into place and can extend, such as pre-deployment quarantine, intensive health checks, and limiting certain training activities. But much will depend on trust between the training state and a host government, that each will follow strong public health practices. Canada will have to negotiate the terms of health protocols for these missions with local partners in order to maintain trust with recipient countries and multilateral partners. Otherwise, support for these deployments will diminish both at home and in the recipient country.

Even then, there is no guarantee that a capacity-building operation will go ahead. Travel and seemingly unnecessary interactions will face widespread, and warranted, scepticism for some time. In the face of a local outbreak, future operations could easily be suspended at a moment's notice.

There will likely be particularly problematic consequences for the United States. There, an astonishing bureaucratic complexity makes it hard to put together training operations at the best of times, because a military planner must cobble together funding from many different programs with different congressional authorizations, each with different reporting requirements and deadlines. Add to this the suspension of training operations, and the resulting administrative disruption will make training quite difficult to plan for. DND should prepare for confusion from its American partner in training operations with which it pairs with the United States.

More generally, in the coming year, Canada should be prepared for its key multilateral partners to do less capacity-building. Weighing public-health criteria against foreign policy priorities, Canada's NATO allies— with possible exceptions such as France in the Sahel—are likely to continue reorienting capacity-building away from counterinsurgency contexts in places like Iraq and focus on preserving capacity-building activities among NATO members and key non-members like Ukraine. Some suspensions may go even farther. In future waves of the pandemic, Canada should be prepared that key allies make decisions about these operations on public health criteria alone, as the United States did, and not on a balance of foreign policy interests. This will limit the multilateral contexts in which Canada can conduct capacity-building and in which it has a foreign-policy imperative to do so. In order to keep up capacity-building in other contexts, Canada will have to prepare to do so with little allied involvement.

Longer-run pandemic consequences: capacity-building and COVID-19 in a changing geostrategic context

Analyzing the likely impacts of COVID-19 over the longer term requires broader assumptions. The following seem realistic:

- With the economic crisis, there will be significant and increasing pressure to reduce military budgets, though these can be put off for some time through deficit financing because of low interest rates.
- Geopolitical competition between China, Russia and the United States will worsen.

Unfortunately, these assumptions cannot yet yield a clear prediction about how other states will engage in capacity-building. Two scenarios are plausible, following from the first two assumptions. First, cuts may affect capacity-building operations disproportionately, because they may be seen as nonessential compared to other defence functions (on top of the public-health risks of putting members of different countries' armed services in close proximity with each other).

However, capacity-building operations may instead become more popular in the next few years, particularly if geostrategic rivalry escalates and American and other states' interests clash in a variety of different countries. Concerns about defence budgets may actually spare capacity-building or even make it more attractive, just as limits to resources helped to lead to a shift from large-scale counterinsurgency missions to capacity-building in the 2000s and 2010s. Great powers pursuing geopolitical rivalries may look for ways to do so that are relatively inexpensive and do not engage their forces in costly, dangerous and potentially destabilizing direct interventions. Capacity-building with local proxies may be just such a policy tool, attractive to states like China, Russia, the United States, France and Britain as they seek to assert their relevance and influence in various countries. In that scenario, Canada's allies are likely to call on Canada to do more.

Questions soulevées par les impacts de la crise de la COVID-19 sur les Rangers et sur les communautés du Nunavik

Magali Vullierme

Objectif

La compréhension du rôle des patrouilles de Rangers canadiens dans la crise de la COVID-19 permettra une évaluation du processus de mobilisation et de déploiement de cette sous-composante de la Réserve de l'Armée de terre. D'un point de vue communautaire, elle permettra également d'appréhender le rôle joué par ces patrouilles dans le renforcement de la sécurité sanitaire des communautés arctiques. Enfin, cette évaluation pourra analyser le potentiel réajustement du mode de fonctionnement des patrouilles suite à la crise de la COVID-19.

Historique

Le 1er avril 2020, le 2e Groupe de patrouilles des Rangers canadiens (2 GPRC) a été la première unité des Forces armées canadiennes (FAC) formellement sollicitée et mobilisée par le Gouvernement du Québec dans le cadre de l'opération LASER en réponse à la pandémie de la COVID-19. Cette première demande d'assistance concernait le Nunavik et a été étendue les 14 et 17 avril à la Côte-Nord du Québec. Selon les chiffres du 2 GPRC, l'Op LASER a mobilisé plus de 250 Rangers dans la totalité des 14 communautés du Nunavik et dans 13 communautés de la Côte-Nord du Québec, dont quatre communautés innues et une communauté naskapie. Cela représente 35 % de l'effectif total du 2 GPRC et 22 des 28 patrouilles de Rangers canadiens mobilisées, en partie ou en totalité, dans plus de 28 communautés. L'Op LASER est à ce jour la plus importante et la plus longue opération nationale (plus de 70 jours) depuis l'officialisation de ces patrouilles en 1947. Notons qu'avant même le déclenchement de l'Op LASER, le 2 GPRC avait anticipé une mobilisation de ses patrouilles et réfléchit collectivement avec ses Rangers et ses instructeurs aux besoins des communautés et aux moyens disponibles au 2 GPRC.

Pistes de réflexion

Cette mobilisation exceptionnelle des patrouilles de Rangers a demandé une capacité d'adaptation et de communication entre les différents services publics civils et le 2 GPRC. Quelles sont les leçons et les axes d'amélioration à tirer de cette mobilisation ? La réponse à la crise de la COVID-19 a-t-elle été suffisante, notamment en termes de sécurité sanitaire ?

La sécurité sanitaire, une des sept dimensions de la sécurité humaine identifiées par le Rapport sur le Développement Humain de 1994 , est notamment garantie par un accès facile et à un coût abordable aux soins. Les communautés arctiques étant géographiquement très isolées et éloignées des centres hospitaliers, leur sécurité sanitaire est à risque dans tout l'Arctique circumpolaire. Au Nunavik, deux hôpitaux sont disponibles pour les quatorze communautés inuit et leurs 11 700 habitants. Situés à Kuujjuaq et à Puvirnituq, ces hôpitaux sont équipés chacun de deux lits de soins intensifs. Par ailleurs, les ménages du Nunavik sont généralement caractérisés par une population élevée par foyer, augmentant les risques de propagation virale. Ces quelques éléments illustrent le risque particulièrement élevé couru par cette région en cas de propagation de la COVID-19. Ainsi, il est crucial de mesurer l'impact de cette crise pour la sécurité sanitaire des communautés arctiques à court, moyen et long terme de la crise de la COVID-19. En effet, cette crise a-t-elle accentué les risques à la sécurité sanitaire ou, au contraire, renforcé les moyens et outils disponibles pour garantir une meilleure sécurité sanitaire des communautés arctiques ? Une telle analyse passera notamment par une évaluation de la perception de la mobilisation des patrouilles de Rangers canadiens dans les communautés. Enfin, ces patrouilles sont-elles une solution durable pour répondre à ce type de crise ? Devraient-elles être mobilisées si une crise similaire apparait ? Mais surtout, pourraient-elles l'être étant donné leur mandat principal? Quels seraient les autres moyens ou outils disponibles pour répondre à de potentielles crises de santé publique et, plus généralement, pour garantir une meilleure sécurité sanitaire des communautés arctiques?

Dans un communiqué, le commandant du 2 GPRC, le Lieutenant-Colonel Mainville a souligné l'urgence, à l'avenir, « d'adapter notre culture et nos méthodes usuelles de travail afin de maintenir, entre autres, la capacité opérationnelle des Rangers canadiens, et participer activement à l'essor de la jeunesse dans nos communautés par le Programme des Rangers juniors canadiens ». Cette adaptation passerait, notamment, par des entrainements qui, pour respecter les consignes sanitaires, pourraient se faire « en mode autonome, c'est-à-dire sans la présence en personne d'un membre du quartier général du 2 GPRC ». Compréhensible au regard de la situation actuelle, cette

adaptation modifierait profondément le mode de fonctionnement des patrouilles du 2 GPRC. En effet, les patrouilles de Rangers sont actuellement construites sur un échange équilibré de cultures et de connaissances entre Rangers Autochtones et instructeurs Blancs. Or cet échange se fait principalement durant les entrainements hivernaux et estivaux. Bien qu'effectué sur un court laps de temps, cela permettait aux Rangers et aux instructeurs de bâtir des relations interpersonnelles fortes, en offrant aux instructeurs une meilleure compréhension des cultures autochtones et des réalités communautaires des patrouilles avec lesquelles ils travaillaient. Dans ce contexte, cette nouvelle forme d'entrainements « autonomes » ne risquerait-elle pas de creuser un écart de « compréhension » entre les instructeurs et les Rangers, entre cultures blanches et autochtones ? D'un autre côté, cette évolution ne permettrait-elle pas d'impliquer plus encore les communautés au sein des patrouilles de Rangers canadiens en leur donnant une autonomie « complète » durant leurs entrainements ?

Ainsi, l'évaluation de l'impact de la crise de la COVID-19 sur les Rangers canadiens et sur les communautés du Nunavik pourra être double : celle du rôle joué par ces patrouilles dans le renforcement de la sécurité sanitaire des communautés arctiques ; et celle d'une possible évolution du mode de fonctionnement des entrainements des patrouilles.

Conclusion

The MINDS Program would like to thank the contributors for their insights and work in support of DND/CAF's efforts to understand and respond to the COVID-19 pandemic.
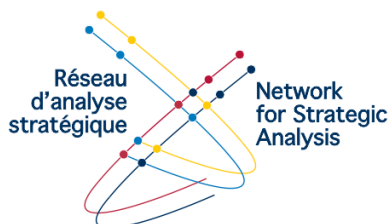
If you'd like to learn more about the MINDS Program or the work of the Collaborative Networks, visit the websites below or email MINDS@forces.gc.ca.

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ANNEX A – The MINDS COVID-19 Challenge

MINDS COVID-19 Challenge

As the world responds to the most severe global health crisis in a generation, the Department of National Defence and the Canadian Armed Forces (DND/CAF) are focused on identifying and understanding the geopolitical consequences, lessons to be learned, and implications for the Defence Team, its people and capabilities. First, understanding the pandemic's impact on great power competition, economic prosperity, and political stability are a top priority, particularly as governments consider re-opening their societies and economies. Second, at home and abroad there are hard lessons to be learned about anticipating, responding to, and managing public health crises, and questions about the appropriate role for military capabilities in civilian-led response efforts. Lastly, the pandemic's disruption presents challenges and opportunities across the defence and government portfolios, particularly in the areas of personnel, logistics and procurement, information management and technology (IM/IT), governance, planning, and operations.

Considerations
Proposals should examine the pandemic's geopolitical and economic impacts, the lessons to be learned from response efforts at home and abroad, or its implications for DND/CAF's people, capabilities, roles, and relationships. As these issues are complex and multidimensional, expertise from a wide range of disciplines is welcome (e.g. from security and defence perspectives to experts in public health, law or sociology). Proposals may situate or problematize DND/CAF's mandate and role as a 'force of last resort', considering its unique contributions and capabilities within broader whole-of-nation efforts to anticipate, prevent, and manage health crises. Proposals could also give thought to the complex nature of the problem and its disparate impacts on urban, rural, remote, and vulnerable communities, both at home and abroad. Proposals may also consider how DND/CAF can maintain readiness and appropriate force protection, while conducting concurrent operations both at home and abroad.

Desired Outcomes
The goals of this challenge are threefold. First, to generate ideas on how COVID-19 is changing the global security environment and will intersect with emerging trends and technologies. Second, to identify lessons and best practices from COVID-19 responses in Canada and elsewhere, particularly as they relate to 'flattening the curve' of transmission, maintaining force readiness, and integrating military capabilities within federal, provincial/territorial, and municipal efforts. Lastly, to identify the short- and

long-term implications for the people, capabilities, processes, roles, and relationships of DND/CAF.

Key Questions

Geopolitical Impacts

- How has COVID-19 changed the geopolitical landscape? What are the likely short- and long-term impacts of the pandemic on international relations, defence and security issues, political economy and society?

- How has the COVID-19 pandemic changed the nature of strategic competition between great powers, most notably between the US (and the West) and Russia/China?

- What, if any, are the potential impacts of aggressive disinformation operations targeting Western governments, including militaries, on future operations?

Lessons Learned

- What lessons can DND/CAF learn from Canada and other countries' response to COVID-19?

- What's the appropriate role for DND/CAF in managing and responding to requests for assistance?

- How can DND/CAF work more closely with other government departments and agencies, civil society organizations, and the communities in which they serve to prepare for and prevent the spread of infectious disease? Who are the key stakeholders with whom they should partner?

- How can DND/CAF contribute to Canada's global health engagement, in anticipation of health security becoming a larger problem in the future?

- Should there be a restructuring or re-prioritization of the collection and presentation of medical intelligence to DND/CAF leadership and other government departments?

- What vulnerabilities or dependencies revealed by COVID-19 require urgent action (supply chains, reliance on civilian health care, etc.)?

The Defence Team: People, Capabilities, Roles, and Relationships

- How can DND/CAF adapt its support and service delivery to DND/CAF members and their families following COVID-19? What unique barriers or challenges did CAF members and their families encounter in managing the crisis?

- How can DND/CAF help to grow the economy following COVID-19? How can the CAF assist the recovery of Canada's defence and dual-use sectors which are essential to meeting capability needs or maintaining readiness/posture?

- How can the Primary Reserve and Ranger forces be used during public health crises?

- What are the impacts to *how* the CAF operate during a global health pandemic? What equipment, training, doctrine, capabilities, etc. would better prepare DND/CAF for future public health crises?

- What are the gendered and diversity implications of the Covid-19 pandemic on CAF members, both at home and in their work?

- What are the implications of COVID-19 for DND/CAF's capacity building efforts abroad? How should DND/CAF engage with partner forces to enable partner nation rebalancing post-COVID-19?

- What opportunities for innovation and efficiency have arisen from the COVID-19 crisis and what can DND/CAF learn from adaptations elsewhere in the public and private sectors?