THE
PLOUGHSHARES MONITOR

VOLUME 47 | ISSUE 4

WINTER 2026

WHICH WAY FORWARD?

CANADA'S PURSUIT OF SECURITY IN AN UNCERTAIN WORLD



SPACE SECURITY
THE CHALLENGE OF RESTRAINT IN OUTER SPACE

EMERGING TECH
THE HUMAN-MACHINE DECISION MAKING TEAM

ARMS TRADE
CANADA'S GROWING UAV MARKETPLACE

50TH ANNIVERSARY
SUPPORT FOR PEACE STILL AS STRONG AS EVER

"and they shall beat their swords into ploughshares, and spears into pruning hooks; nation shall not lift up sword against nation; neither shall they learn war any more." Isaiah 2:4

The Ploughshares Monitor
Volume 47 | Issue 4

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STUDENT INTERNS

Miguel Ilustre
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Winter 2026

3 **Director's Message**
Security in transition
by Paul Heidebrecht

4 **Book Review**
Values | Chaos: Discovering Mark Carney and Canada's Role in a Ruptured World by Douglas Roche
by Branka Marijan

5 **The Art of Racing in the Fog**
Weapons, uncertainty, and the challenge of restraint in outer space
by Jessica West

8 **Preserving the Decision Space in Military AI**
by Branka Marijan and Anastasia Townshend

12 **The Arctic's First Line of Defence**
by Jessica West and Miguel Ilustre

16 **Canada's Growing UAV Marketplace**
Will safeguards keep pace?
by Kelsey Gallagher

20 **Celebrating 50 Years of Passionate Support for Peace**
by Fred Martin

23 **What Does it Mean to Prevent an Arms Race in Outer Space?**
by Miguel Ilustre

The Ploughshares Monitor is the quarterly journal of Project Ploughshares, the peace research institute of The Canadian Council of Churches. Ploughshares works with churches, nongovernmental organizations, and governments, in Canada and abroad, to advance policies and actions that prevent war and armed violence and build peace. Project Ploughshares is affiliated with the Kindred Credit Union Centre for Peace Advancement, Conrad Grebel University College, University of Waterloo.

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Director's Message

Written by Paul Heidebrecht



Director Paul Heidebrecht addresses a full room of supporters at Project Ploughshares' 50th Anniversary Fundraising Gala on September 21, 2026 in Waterloo, ON. Photo: Lisa Umholtz, Project Ploughshares.

The title of Douglas Roche's latest book, reviewed in this issue of *The Ploughshares Monitor,* pairs two words that aptly frame the tension many of us are feeling: values and chaos. We want to remain true to our deepest values and convictions about what leads to peace, but we also recognize that the demise of the rules and norms that used to govern political relationships and our social fabric demands some kind of response.

Where do we turn when we are feeling insecure and anxious? What do we anchor our hopes and dreams to when our context is changing so quickly and so significantly?

Project Ploughshares continues to be guided by an ancient vision that depicts nations disarming—rather than re-arming—in their journey toward peace. We certainly don't presume to have all the answers to the threats to peace and security that too many people in the world are facing. But we do have five decades of perspective to draw on. There have been times when we have drawn closer to the realization of our vision of a disarmed world, and times when we have seen it recede. And I think that in this time and place we need to persist in our efforts, not to question or change our vision.

Of course, we need to respond creatively to new developments in the issues we seek to address. We need to be open to learning and reacting in constructive ways. As the articles in the following pages demonstrate, in recent months there has been a lot for our researchers to keep abreast of.

After decades of working to prevent an arms race in outer space, it appears that the race is now on. Likewise, the adoption of AI decision-making tools by the military is now a reality, not a hypothetical scenario. And the rubber is starting to hit the road when it comes to Canada's new investments in the defence sector, including building the capacity to manufacture and export drones, and expanding our military presence in the Arctic.

In addition to persisting with our vision and with our approach of conducting careful research and analysis to support disarmament, we are persisting with our long-standing practice of collaborating with others to engage policymakers. In recent months, this has included drafting and delivering a civil society statement on behalf of 16 organizations to the UN First Committee on Disarmament and International Security on outer space security (see p. 19). We also contributed to a forum for diplomats on nuclear disarmament in Ottawa that was co-organized by the Canadian Network to Abolish Nuclear Weapons and the Canadian Pugwash Group, and I joined 28 other faith leaders in writing to the Prime Minister during International Disarmament Week to express our deep concern over the government's approach to securing Canada's economic and national security.

I hope this issue gives you a helpful glimpse into our efforts to persist, learn, and collaborate in ways that reflect your values even in the midst of these turbulent times.

Book Review

Values | Chaos: Discovering Mark Carney and Canada's Role in a Ruptured World *By Douglas Roche*



Douglas Roche in Ottawa, July 2021.
Photo: Robin Collins.

Review by Branka Marijan

Few Canadians can claim to have personally known 11 prime ministers, served in both the House of Commons and the Senate, and represented Canada abroad on disarmament and international security. Fewer still can add that they once defeated the father of the current prime minister in a federal election. The Hon. Douglas Roche, Order of Canada, is a Canadian author, politician and diplomat and peace activist. Roche brings this unusual vantage point, decades of experience, and astute analysis to his latest collection of essays, exploring the tensions between principles and political realities shaping Canada's future.

The essays span the period before Mark Carney's election and the subsequent months as his government's policies and priorities took shape, tracing Roche's efforts to understand Carney's leadership and vision for Canada. Throughout, Roche asks a question that extends beyond any single prime minister: what kind of principled leadership does Canada need on global peace and security, and how can ambitious goals be translated into action amid upheaval at home and abroad?

Roche sees Carney as well suited to lead Canada through an exceptionally difficult period, particularly its tumultuous relationship with the United States under President Donald Trump. As Roche writes, "Carney is prime minister at a truly unique — and very dangerous — moment in Canada's history."

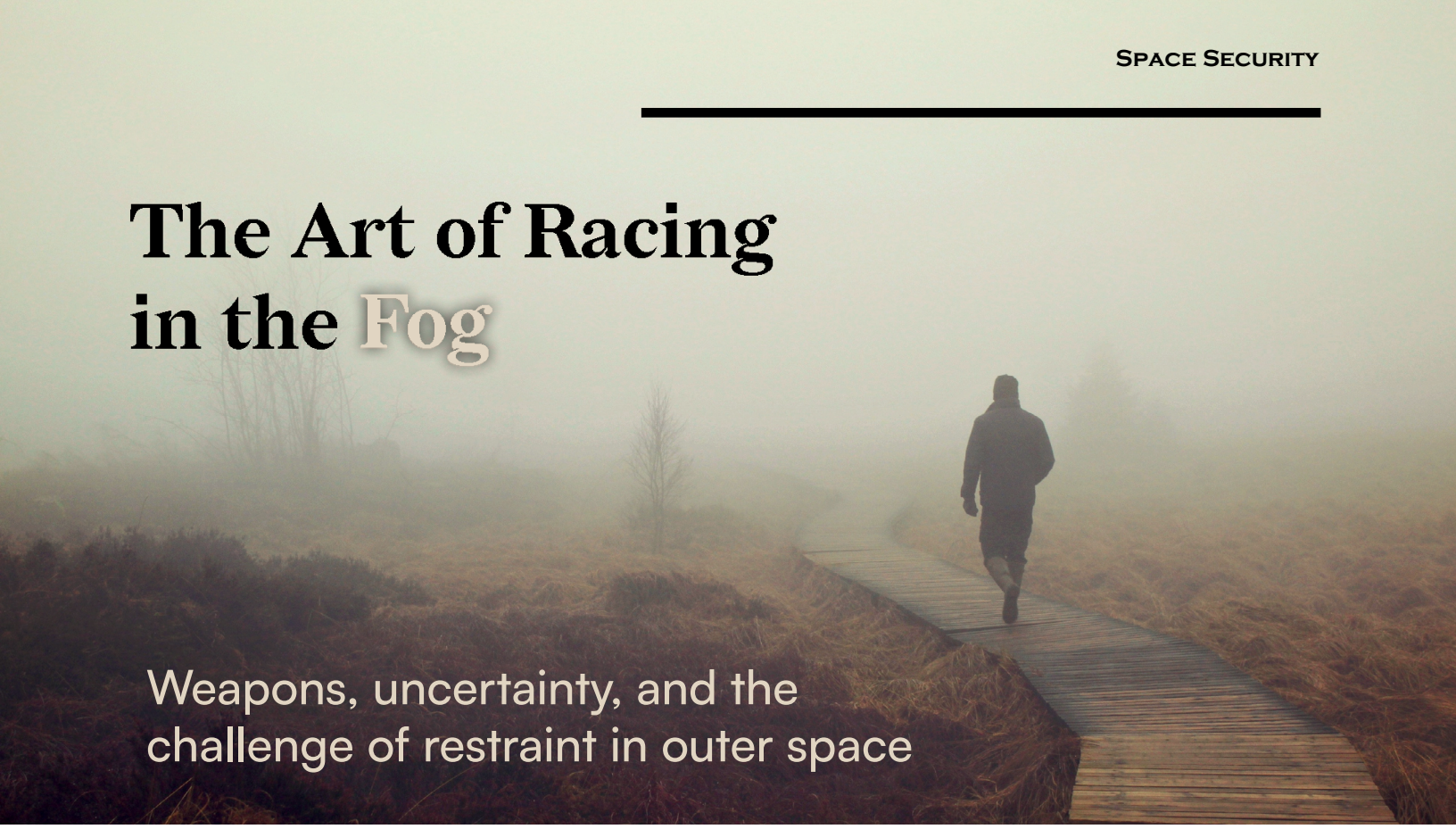
On global security, however, Roche is more critical. He questions Carney's support for U.S. strikes on Iran and his subsequent description of that support as coming "with regret." This episode illustrates the tension between Carney's stated values and the pressures of governing. Roche observes: "Like all politicians, Carney is doing what he has to do to survive. The poetry of his Davos speech has met the pragmatism of the public arena. Whether 'values-based realism' will make him a great leader remains to be seen."

Roche's criticism is accompanied by a clear sense of what Canada could do differently. He argues that principles and pragmatism must be brought together in responding to today's crises. Supporting nuclear disarmament, honouring climate commitments, and investing in preventive diplomacy and international development are, in his view, practical steps toward a safer world. His challenge to Carney is to make human security the guiding priority of Canada's international engagement and to build middle power partnerships that advance the United Nations' agenda for peace.

Pursuing this direction also requires bringing Canadians into the conversation. Roche urges Carney to explain his choices, engage the wider public and respect Parliament's role in holding government accountable. Economic expertise and international stature cannot, on their own, sustain the public support needed for lasting change. This emphasis gives the collection a valuable domestic dimension: Canada's role abroad depends in part on the quality of its democratic leadership at home.

Roche remains ever the optimist, but his optimism comes with expectations. Carney has an opportunity to turn his stated values into policies that improve human lives, and Canadians have a responsibility to scrutinize those choices. This connection between political leadership and public engagement gives the collection its broader resonance. In this thoughtful and highly recommended book, Doug Roche reminds us that politics is everyone's business and that a better world requires both aspiration and action.

The Art of Racing in the Fog



Weapons, uncertainty, and the challenge of restraint in outer space

Written by Jessica West

The era of peaceful uses of outer space is unravelling, not with a bang, but with a seemingly unremarkable statement. On September 14, U.S. Secretary of the Air Force Troy Meink announced that "the United States has on-orbit space control weapons capable of defending the Joint Force against hostile adversary action." At once cryptic and definitive, the sentence marked the first time the United States has publicly acknowledged operating weapons in orbit. Their specific capabilities and intended uses remain undisclosed. This leaves other states to speculate about the threats they pose and how to respond. As Canada undertakes "generational investments" in defence, equal investment is needed in the conditions of stability, including climate resilience, orbital safety, and crisis prevention, that make lasting security possible.

To be sure, outer space has never been entirely peaceful, nor has it been without bangs. Between 1958 and 1962, the United States and Soviet Union detonated nuclear weapons in space, generating artificial radiation belts that damaged satellites, and demonstrating the destructive potential of nuclear weapons beyond Earth. Since then, several countries have conducted destructive anti-satellite tests using ground-launched missiles, while experimental anti-satellite weapons and other military space programs have operated behind what I have previously described as the *fog of peace*: the language of peaceful uses that obscures growing military competition in space.

Yet these activities unfolded alongside a broader diplomatic commitment to containing the extension of armed conflict into outer space. Nuclear testing helped spur the 1963 Partial Test Ban Treaty, followed by the 1967 Outer Space Treaty, which prohibits the placement of nuclear weapons and other weapons of mass destruction in orbit. The development of other counterspace capabilities prompted decades of diplomatic efforts aimed at the prevention of an arms race in outer space (PAROS). The disclosure of weapons in orbit reveals the limitations of these efforts. Yet the objective of preventing an arms race has remained a defining feature of space security governance. Weapons in space were something to prevent, not normalize.

Now the fog of peace is mingling with a new fog of weapons: capabilities described as peaceful or defensive can also threaten or attack satel-

lites, while openly acknowledged weapons remain shrouded in secrecy about what they can do and how they might be used. Neither the language of peace nor the acknowledgement of weapons reveals much about the threats posed by specific systems or activities.

An Arms Race Unfolding in Real Time

As the United Nations First Committee opened this October, UN High Representative for Disarmament Affairs Izumi Nakamitsu warned that "we are drifting from the long-standing goal of preventing an arms race to the need to halt one." Her assessment was brought into sharp relief as major powers traded accusations over who had placed weapons in orbit first, whose capabilities were most threatening, and who was responsible for turning outer space into a potential battlefield.

Russia and China criticized the United States for its acknowledged deployment of orbital weapons, while Russia also singled out Golden Dome and its planned space-based missile defence interceptors. The United States countered that Russia and China had already deployed space weapons, maintaining that it was simply the first to acknowledge doing so. Its own capabilities, the US argued, were necessary to deter attacks and defend military space assets. The exchanges illustrate the circular logic of an arms race, in which the perceived threats posed by others become justification for pursuing additional weapons.

> "Military preparations are justified as necessary responses to threats posed by others, even as governments continue to profess commitments to peaceful uses and responsible behaviour.

This competition is also visible outside of the UN. In September, the United Kingdom established a new Space Effects Squadron to support offensive and defensive operations in space, presenting the move as necessary to counter growing threats to its satellites. Annual reporting points to a growing pursuit of counterspace and defensive capabilities.

Across these developments, military preparations are justified as necessary responses to threats posed by others, even as governments continue to profess commitments to peaceful uses and responsible behaviour. As Project Ploughshares' joint civil society statement to the First Committee observed, "this is the logic of an arms race unfolding in real time."

Where the Fogs Meet

The fog of peace has hardly lifted. Technologies that enable satellites to approach, inspect, service and protect other spacecraft can also enable interference or attack. Proposed satellite 'bodyguards' illustrate the problem. In April, Canadian company MDA Space unveiled MIDNIGHT, a proposed platform designed to protect space assets using capabilities that include proximity operations, electronic countermeasures and robotic capture. Although its initial mission envisions cooperative operations, such technologies raise questions about how they might be used or perceived in less cooperative circumstances.

The two fogs converge in a common problem: neither descriptions of peaceful or defensive intent nor declarations of weapons capabilities reliably distinguish threats from non-threats. Instead, uncertainty can cast suspicion across a wide range of military and commercial activities, encourage worst-case assumptions, and prompt further countermeasures.

Misperception and unintended escalation are serious dangers. But uncertainty can also drive the arms race itself, reinforcing the perceived need for additional weapons.

Can Restraint Temper the Race?

As the prospect of preventing an arms race becomes more elusive, space diplomacy is placing greater emphasis on reducing the immediate risks of military competition. Greater transparency, communication and predictability can help reduce misperception and unintended escalation, particularly when declarations of peaceful intent



or responsible behaviour offer limited reassurance. But making an arms race less dangerous is not necessarily the same as slowing it.

The current United Nations Open-Ended Working Group on the Prevention of an Arms Race in Outer Space in All Its Aspects (OEWG on PAROS) provides an opportunity to bring these objectives together. Its agenda encompasses both legally binding and voluntary measures, including restrictions on the placement of weapons in orbit and measures to address threatening activities and behaviours.

Proposals to restrict destructive activities, potentially threatening close approaches and harmful interference with critical space systems provide possible starting points. For example, reciprocal commitments concerning uncoordinated close approaches could reduce immediate risks of confrontation while potentially diminishing the perceived need for additional defensive weapons. Commitments not to interfere with satellites supporting nuclear early warning and command-and-control could likewise reduce incentives for pre-emptive action.

Making such commitments credible is another matter. The dual-use nature of space capabilities makes it difficult to distinguish peaceful or defensive activities from potentially threatening ones, while declarations that weapons are in orbit reveal little about the threats they pose. Restraint needs more than labels. States need commitments that are specific enough to assess compliance, supported by observation, reciprocity, and mechanisms for addressing suspected violations. For example, commitments concerning close approaches could include advance notification, agreed expectations for behaviour, and procedures for raising and resolving concerns. But such measures must also be meaningful enough to influence decisions about the development and deployment of additional weapons. Some threats may require restrictions on capabilities themselves, such as limits on the deployment of space-based interceptors, rather than simply how they are used.

An arms race in outer space is no longer a potential future to be avoided. Its dynamics are unfolding today, with few effective constraints. Measures to reduce the risks of this competition are necessary. But we must also seek forms of restraint that address the threats and insecurities making the pursuit of further weapons seem necessary. Otherwise, we risk accommodating the very competition that PAROS was intended to prevent.

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Preserving the Decision Space in Military AI



Written by Branka Marijan and Anastasia Townshend

Earlier this year, during the war with Iran, US military personnel were preparing to board a Chinese ship in the Middle East when officials discovered that the intelligence behind the operation was false. According to CNN, an analyst had used an artificial intelligence (AI) chatbot to help produce a report claiming that the vessel was carrying components for a nuclear weapons program. The chatbot had misidentified the cargo. The error was caught before the operation began, but one source told CNN it "almost started a war."

At first glance, this may simply look like a story about the dangers of inaccurate AI. The deeper issue, however, is what it tells us about the space left for human judgement in military decision-making. A human analyst prepared the report, and it circulated across the military, yet the error went undetected until the mission was nearly underway. Human judgement was ultimately exercised in this "close call," and, to be fair, human analysts also make mistakes without AI. But as militaries increasingly use AI systems to speed up their work, from sorting through intelligence to target selection, the ability of humans to intervene in what can be thought of as the "decision space" is narrowing.

Countries deploying military AI face several critical questions: do the people using these systems have the time, knowledge, and information to exercise informed judgement? And do they have the authority to challenge the outputs and change course? Some researchers argue that AI decision support systems (AI DSS) are shaping this space before a human even enters it. By filtering information and presenting some options over others, these systems can frame the choices available for human review. Preserving human judgement therefore requires closer scrutiny of how decisions take shape.

What is in a Decision?

A decision is often thought of as a single act or a final choice, but it is also a process. Decision-making is the way a person, group, or organization, chooses a future cause of action given its objectives and limits on its resources. In military decision-making, limited resources such as time, information, and options are increasingly being shaped by AI.

Researchers and analysts describe these conditions as the decision space, though the term is



U.S. Army Capt. Zach Marise uses the Maven Smart System in Arlington, Virginia, February 20, 2026. Preserving human judgement requires attention to how personnel understand, assess, and use AI-supported information. Photo: U.S. Army / Master Sgt. Whitney Hughes. The appearance of U.S. Department of War (DoW) visual information does not imply or constitute DoW endorsement.

often used without being properly defined. Here the decision space can be understood as the room for human judgement shaped by the interaction of people, technologies, culture, and organizational practices. It depends on whether personnel understand a system's capabilities and limitations, how its outputs are presented and passed between people, and whether military procedures and working cultures support questioning them. Preserving this space requires attention to both the technology and the conditions in which people use it, including their expertise, training, time, access to information, and authority to change course. To understand how AI systems affect this decision space, it is helpful to look first at how humans make decisions, and then at how machines do.

Human Decision-Making

Understanding human decision-making is more difficult that often assumed. Dual-process theory, popularized in Daniel Kahneman's *Thinking, Fast and Slow,* offers one way to approach it. The theory distinguishes between two modes of thinking: System 1 and System 2. System 1 is fast, intuitive, and largely automatic, often drawing on patterns recognized from experience. System 2 is slower and more deliberate, involving conscious analysis and the application of rules. Intuitive thinking, sometimes described as a "gut feeling," is not necessarily less capable. As people develop expertise, tasks that once required deliberate effort and consideration can become more automatic.

The 1983 nuclear close call involving Soviet Lieutenant Colonel Stanislav Petrov illustrates how experience and contextual understanding can inform judgement under pressure. When an early-warning system reported incoming US missiles, Petrov judged the warning to be false. His assessment rested partly on the reported attack's small scale, as he expected a US first strike to involve far more missiles. The lesson is that questioning a system's output can draw on both intuition and reasoned assessment.

Both modes of thinking are influenced by the conditions in which decisions are made. Emotions and contextual cues can shape how people assess their options. The presentation of those options also matters; people may choose differently depending on how the same choice is framed.

Time is especially relevant to military decision-making. Limited time leaves less room for deliberation, and some experimental research has linked high time pressure to greater risk-taking. Yet Petrov's example suggests that intuition,

training, and contextual understanding can support thoughtful judgement even under intense pressure. Human decisions, in other words, are shaped not only by the information available but also by the experience people bring and the conditions under which they receive, interpret, and act on it.

Machine Decision-Making

Where human decision draws on intuition and analysis, machine learning systems reach their outputs in a fundamentally different way. Rather than following rules written by a programmer, they learn patterns from training data and make decisions based on mathematical probabilities.

One way to understand how they decide is through the concept of a decision boundary. Consider an exam with a passing mark of 50. A student who scores 51 and another who scores 95 both receive the same label of a "pass," even though one only just reached the passing mark while the other far exceeded it. The pass mark works like a decision boundary: the tipping point in which a system's answer flips from one label to another. However, the pass label alone does not show how well a student actually did. This is what a decision boundary captures. Like seeing every student's actual score, it shows how far each case sits from the boundary and therefore how confident the system is. The closer a case sits to the boundary, the less it takes to tip it the other way, and the more likely it is to be misjudged.

> "In military decision-making, limited resources such as time, information, and options are increasingly being shaped by AI.

Machine outputs can also be affected by other factors. Large language models, for instance, are often trained in ways that reward guessing over admitting uncertainty, which can lead them to produce hallucinations - plausible but false statements delivered with apparent confidence. Wording matters as well. When researchers tested large language models in a military crisis simulation, simply rephrasing the same question could lead the models to recommend very different courses of action. Even when a system offers an explanation, it may not reflect the actual basis for the output, which risks encouraging over-reliance. Machine outputs can therefore carry uncertainty that neither the system or its user can readily detect.

Human-Machine Teams and Decision-Making

In order to bring together human knowledge and contextual understanding and machine capabilities, there is an increasing focus on understanding human-machine teams. The aim is to have AI systems as supports and humans as decision-makers. Much of the appeal of AI-enabled systems lies in speed and scale. Some military institutions and some policy discussions cast humans as an obstacle to faster operations, as they are prone to fatigue, overload, and delay, while AI promises to process information far faster than humans could. In the war with Iran, US forces have reportedly used AI decision support systems to shrink targeting timelines from hours or days to minutes.

In principle, teaming combines the strengths of both machines and humans. Machines can process more information, faster and more consistently, than human analysts, while humans bring the contextual reasoning and practical judgement that machines lack. Together, they could widen and deepen the decision space, giving decision-makers more information and more options than either could produce alone.

Yet the benefits of these teams are not automatic. As Paul Scharre from the Center for a New American Security notes, human-machine teams are different than solely human ones. Scharre argues, "Militaries are adding into their warfighting functions an information processing system that can think in ways that are quite alien to human

intelligence." Simply, AI outputs can be difficult to interpret, leaving personnel uncertain about the basis for a recommendation or how much weight to give it. For militaries, these questions bring forward concerns about appropriate reliance and as Scharre notes, impacts of systems that do not necessarily engage in longer term thinking. Even seemingly simple technical aspects, such as system design, can also shape human judgement and effectiveness of human "teammates." That is, how information is presented, which options are prioritized, and what remains out of view can nudge decisions in particular directions. The speed and scale that make AI attractive for militaries may further narrow the time available to scrutinize an output or consider alternatives. As such, the decision space must also allow people to bring contextual understanding to bear, question whether a proposed action is appropriate, and, at times, grapple with consequences beyond the immediate operational objective, including longer-term humanitarian and strategic impacts.



An Indra Group drone on display at the entrance to the Third REAIM Summit in A Coruña, Spain. Photo: Branka Marijan, February 2026.

Shaping the Decision Space

The close call over the Chinese ship ended before anyone boarded it, but it raises questions that extend well beyond this single incident. How much time did the analyst have to check the chatbot's output? Did those reviewing the report understand how it had been produced and the system's limitations? What evidence was available to verify its claims, and were alternative explanations for the cargo considered? At what points could someone question the assessment or halt the operation?

These are questions about the decision space, the interaction of technology, human expertise, and organizational conditions that shapes whether judgement can be exercised. As AI becomes more deeply embedded in military decision-making, those conditions require closer scrutiny. Systems should be designed in ways to make uncertainty and limitations visible, training should develop technical understanding alongside contextual judgement, and military procedures and working cultures should support questioning and intervention. To help prevent further close calls, countries engaged in diplomatic discussions on military AI need to develop a shared understanding of human judgement and practical guidelines for preserving it.

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The Arctic's First Line of Defence

Members of 38th Canadian Brigade Group's Arctic Response Company Group secure equipment to a sled during Operation NANOOK-NUNALIVUT at Cambridge Bay, Nunavut on 17 February, 2026. Photo: Corporal Amelie Graveline, Imagery Technician, 12 Wing, Shearwater. Department of National Defence.

Written by Jessica West and Miguel Ilustre

On a cold March day in Yellowknife, Prime Minister Mark Carney took to a podium before Canadian Armed Forces (CAF) personnel to announce an historic $35 billion plan to strengthen Canada's Arctic security. New military support hubs, highways, and runway upgrades would enhance Canada's military presence while also promising much needed infrastructure benefits for Northern communities. Separately, Canada's $38.6 billion NORAD modernization program includes new Arctic and polar radar systems, enhanced space-based surveillance, and upgrades to military command-and-control and communications capabilities.

Together, these investments demonstrate Canada's growing emphasis on sovereignty through defence. Canada is responding to growing strategic competition in the Arctic by expanding its military capabilities and presence. While new infrastructure promises benefits for Northern communities, the broader investments are primarily intended to strengthen Canada's ability to detect, deter and respond to military threats.

Military competition is not new to the Arctic. From Cold War early warning networks to Russia's nuclear submarine forces, the region has long been central to strategic defence. But renewed military investments and expanding operations carry risks of misperception, dangerous encounters and escalation—risks that must also shape how Canada approaches Arctic security.

Why is Conflict Prevention in the Arctic Necessary?

Canada's 2024 Arctic Foreign Policy assesses the risk of military attack in the North American Arctic as low. But as a recent Stockholm International Peace Research Institute (SIPRI)



study highlights, growing military competition across the wider region is creating new risks of confrontation and escalation. As both the North Atlantic Treaty Organization (NATO) members and Russia expand military activities in the High North, aircraft interceptions, naval operations, and military exercises bring forces into potentially dangerous proximity. These activities also take place near Russia's strategically important nuclear forces, raising the potential consequences of a confrontation. At the same time, diminishing sea ice is enabling more shipping and resource related activity, creating additional demands for maritime safety, governance and cooperation.

The danger is not limited to deliberate aggression. Accidents, misperceptions and failed communications can also lead to confrontation. Risk-reduction measures cannot substitute for credible defence against deliberate aggression, but they can help prevent dangerous incidents from escalating into wider crises.

Canada's Arctic Foreign Policy recognizes diplomacy as a first line of defence, identifying the need to "prevent and defuse potential crises before they can develop into conflict" as a fundamental security objective. Canada has also invested in strengthening its Arctic diplomacy, including establishing a security dialogue with like-minded Arctic states, a priority reinforced in its new national security strategy. But cooperation among allies is not the same as preventing confrontation with potential adversaries. Diplomatic engagement with Russia has been severely constrained since its invasion of Ukraine in 2022. This makes it more difficult, but no less important, to maintain the limited channels of communication and mechanisms for managing incidents that can prevent military encounters from escalating into crises.

The Limits of Military Preparedness

In February 2026, NATO launched Arctic Sentry to better coordinate its deterrence and defence activities in the Arctic region. In August, Russian



A CH-147 Chinook helicopter from 450 Tactical Helicopter Squadron on the Arctic terrain during Operation NANOOK-NUNALIVUT in Cambridge Bay, Nunavut on 5 March, 2026. Photo : Master Corporal Sarah Morley, Imagery Technician, 4th Canadian Division Support Base. Department of National Defence.

Foreign Minister Sergey Lavrov described NATO's expanding military activity in the region a direct threat to Russian security, warning that incidents could escalate into armed confrontation.

Russia's characterization of NATO activities as threatening illustrates a persistent challenge in military security: actions intended to strengthen deterrence can be interpreted—or portrayed—by an adversary as threatening. This is the logic of the security dilemma. In the European High North, where Russia bases much of its submarine-based nuclear deterrent on the Kola Peninsula, military activities perceived as threatening these forces could also increase the risks of nuclear escalation.

In January 1995, Russian early warning systems detected a rocket launched from Norway and initially mistook it for a possible US submarine-launched nuclear missile. The alert reached Russia's nuclear command before the object was identified as a scientific research rocket. Although Norway had provided advance notification, the relevant Russian military personnel did not have that information. The alarm was resolved without escalation, but the incident demonstrated how failures to communicate critical information could turn a scientific launch into a potential nuclear crisis.

Dangerous military encounters are not confined to history. In September 2024, a Russian Su-35 fighter aircraft flew dangerously close to an American F-16 conducting a NORAD interception near Alaska. Although the Russian aircraft remained in international airspace, the encounter demonstrated how routine military operations can create risks of unintended confrontation.

Greater capacity to detect and respond to threats does not necessarily improve our understanding of an adversary's intentions. Without reliable communication and procedures for clarification, even defensive operations can contribute to dangerous escalation when met with the wrong response.

What Does Conflict Prevention Look Like?

The Norwegian rocket incident underscores the importance of advance notification, reliable communication, and procedures for clarifying potential threats. SIPRI also emphasizes that avoiding surprises and increasing predictability are critical to reducing the risks of miscalculation and escalation. Measures such as advance notification of military activities, direct communication channels, and agreed procedures for managing incidents can help prevent misunderstandings

from becoming crises.

Such measures are already used in the Arctic. In 2025, Norway reported three Russian violations of its airspace. Unable to determine whether these incidents were deliberate or the result of navigational errors, Norwegian authorities raised them directly with Russia to reduce the risk of misunderstanding and escalation. Norway also maintains a military hotline with Russia's Northern Fleet, providing a direct channel for clarifying potential incidents even amid heightened political tensions.

> "Greater capacity to detect and respond to threats does not necessarily improve our understanding of an adversary's intentions. Without reliable communication and procedures for clarification, even defensive operations can contribute to dangerous escalation when met with the wrong response.

Practical cooperation can also persist outside of the military sphere. Despite suspending bilateral military cooperation with Russia following its 2014 annexation of Crimea, Canada continues to participate in Cospas-Sarsat, a satellite-based search-and-rescue system established with France, the United States and the Soviet Union during the Cold War. Cospas-Sarsat is not a military confidence-building measure, but it shows that Canada and Russia can maintain practical cooperation even when their political relationship has deteriorated.

What Should Canada Do?

The Arctic Council, the region's principal forum for circumpolar cooperation, explicitly excludes military security from its mandate. This leaves a gap in regional mechanisms for managing military tensions and preventing confrontation among potential adversaries. A comprehensive regional risk reduction agreement is unlikely under current geopolitical conditions. But smaller measures, including those that do not require mutual agreement, could help reduce uncertainty and mitigate escalation risks.

One starting point for Canada is to preserve and strengthen practical regional safety cooperation. The 2011 Arctic Search and Rescue Agreement and Cospas-Sarsat demonstrate that shared interests can sustain cooperation across political divides. Canada could build on these arrangements to improve emergency communications and maritime safety, maintain operational contact with other Arctic states, and address shared risks to Northern communities.

Canada could make conflict prevention an explicit priority of its Arctic security dialogue, working with allies to advance greater transparency around military exercises, more predictable military behaviour and procedures for managing dangerous encounters. It could also draw on Track 2 initiatives, such as the Geneva Centre for Security Policy's High North Talks, which bring together experts from across geopolitical divides to explore options for military risk reduction. Promising proposals emerging from these discussions could then be pursued through official diplomatic channels.

Military competition in the Arctic is likely to persist. Clearer expectations for military behaviour, reliable communication channels and practical procedures for managing incidents can help prevent that competition from escalating into conflict, even in the absence of political trust. For diplomacy to serve as Canada's first line of defence in the Arctic, conflict prevention must be an integral part of its security policy.

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Canada's Growing UAV Marketplace

Will safeguards keep pace?



Written by Kelsey Gallagher

Canada's 2026 Defence Industrial Strategy has earmarked billions of dollars for the domestic defence industry, both to supply the Canadian Armed Forces and to facilitate the expansion of arms exports. The country's growing uncrewed aerial vehicle (UAV) sector is a direct beneficiary of these investments, with federal policy increasingly focused on scaling-up production to meet domestic military requirements and foreign demand.

But as Canada accelerates manufacturing and pursues new export markets, questions remain about how the government will ensure that these systems are transferred responsibly and in accordance with its international obligations. Expanding UAV production and export must go hand-in-hand with upholding Canada's arms control obligations and human rights safeguards, including those established by the Arms Trade Treaty.

The Defence Industrial Strategy

Introduced in February 2026, the Defence Industrial Strategy (DIS) is a major federal initiative to expand Canada's defence industrial base. It comes amid a sharp deterioration in Canada–US relations, ongoing conflicts around the world, and growing economic uncertainty. The federal government has committed billions of dollars to Canadian defence manufacturers, arguing that a stronger domestic industry will bolster both national and economic security.

While major players across Canada's land, munitions, and maritime sectors stand to benefit, the strategy also places newfound emphasis on the country's burgeoning uncrewed aerial vehicle (UAV) industry. Prime Minister Mark Carney has suggested that Canada could produce "millions of drones" within just a few years under the DIS to meet rapidly growing military demand.

This ambition is closely tied to the war in Ukraine, where UAVs have become central to military operations. Since Russia's full-scale invasion in 2022, the use of UAVs in the conflict has grown dramatically. Ukrainian forces reportedly deployed as many as 9,000 UAVs per day in 2025, illustrating the demand for these systems which are now perceived as all-but-necessary in modern military arsenals.

Yet the push to expand Canadian UAV production also raises questions about the potential future customer base of these systems. As Canada seeks to increase its arms exports around the world, export control safeguards are necessary to ensure they are not supplied to problematic end-users or to contexts where they could be used in serious human rights abuses.



A G15 Sentinel drone owned by the Advanced Naval Capabilities Unit based in Victoria, British Columbia is parked by the control tent bearing the Canadian Naval Ensign Flag. This drone is used to test interoperability in arctic conditions as part of Operation NANOOK-NUNALIVUT in Inuvik, Northwest Territories on 27 February 2025. Photo: Master Corporal Alana Morin, Joint Task Force - North, Yellowknife. Department of National Defence.

The Drone Defence Initiative Marketplace

Speed is central to the federal government's current approach in expanding domestic UAV production. The aim is to identify potential collaborators, accelerate technological development, increase manufacturing capacity, and deliver systems to end-users as quickly as possible.

This approach follows longstanding criticisms of Canadian military procurement as slow and inefficient, with major projects frequently delayed and significantly over budget. The DIS seeks to address these problems in-part through the creation of the Defence Investment Agency (DIA), a standalone body intended to accelerate equipment procurement for the Canadian Armed Forces (CAF) and the Canadian Coast Guard.

For UAVs, however, the Department of National Defence (DND) has gone a step further by establishing a dedicated procurement mechanism: the Defence Drone Initiative Marketplace (DDIM) Supply Arrangement. Announced in September 2026 during Ukrainian President Volodymyr Zelenskyy's visit to Ottawa, the DDIM is modelled on Ukraine's Brave1 initiative. It is designed to accelerate Canadian UAV production and facilitate the delivery of systems to military end-users.

While faster procurement of systems like UAVs may help alleviate the CAF's procurement woes in the short term, the DDIM also reflects a broader policy shift towards rapidly scaling up domestic military production.

Between Traditional Procurement and "Amazon Fulfillment Centre"

The DDIM represents a significant departure from traditional military procurement practices. Rather than issuing individual solicitations for suppliers to bid on specific equipment requirements, the DDIM establishes a pre-qualified pool of suppliers from which UAVs and related systems can be sourced with "rapid access." Commander of Canadian Joint Forces Command, Lt.-Gen. Darcy Molstad, has characterized the

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approach as something between Canada's traditional procurement model and "an Amazon fulfilment centre," underscoring the scale of this shift.

The first contract under the DDIM, announced in September 2026, was valued at up to $50 million and involved five suppliers. Merely weeks later, nearly 400 manufacturers had been prequalified under the program. Its areas of focus include low-cost intelligence, surveillance and reconnaissance systems; standardized drone munitions and explosive payloads; and deep-precision strike systems.

The DDIM forms part of a broader federal push to develop Canada's aerospace and defence industries. In March 2026, $900 million was allocated to the aerospace portfolio, with the National Research Council assigned a central role in UAV research and development. The DIS also earmarked $105 million for the Drone Innovation Hub to "enhance drone and counter-drone development" and testing capabilities.

An Export Market in Waiting?

The DDIM is positioned primarily to supply UAVs to the CAF, but its ambitions extend beyond the Canadian military alone. Public investment, expanded manufacturing capacity, and the federal government's arms export agenda are creating the conditions for Canadian manufacturers to pursue a larger share of the international market.

At the DDIM's launch, Prime Minister Carney stated that roughly one-third of the "millions" of systems to be produced would be delivered to Ukraine as military aid. This commitment comes alongside efforts to establish joint Canadian-Ukrainian UAV production arrangements involving start-ups in the sector.

Beyond UAVs intended for the CAF and those committed to Ukraine, an expanded, government-supported production base will lead manufacturers to look to foreign markets to sustain growth. The global UAV market is forecast to exceed US $80 billion by 2031, offering manufacturers opportunities to expand sales beyond the Canadian military and Ukraine.

Export promotion is already a central pillar of the DIS. Since 2025, the federal government has introduced initiatives intended to boost arms sales, including the Strategic Exports Office. It has also expanded the mandates of Crown corporations, including the Business Development Bank of Canada and Export Development Canada, to explicitly support defence exports. These measures contribute to the strategy's broader objective of increasing Canadian arms exports by a staggering 50 per cent.

But what cannot be divorced from this export drive is the real risk these systems pose in the wrong hands, and the export control safeguards that must be considered in the midst of Canada's efforts to surge arms transfers.

Arms Transfers and Canada's Legal Obligations

While rapid military procurement and export promotion may be *de rigueur* in today's policy circles, Canada must still uphold its international obligations when exporting military goods, including UAVs and associated equipment. The DDIM's model of rapidly connecting manufacturers with CAF may help address DND's procurement challenges, but the same approach cannot be taken when Canada is exporting weapon systems to end-users abroad.

As per Canada's obligations under the legally-binding Arms Trade Treaty (ATT), officials are required to conduct case-by-case risk assessments on all arms exports covered under Canada's domestic control regime. These assessments must consider whether any export may be used to undermine peace and security, or that they could be used in serious violations of international hu-

manitarian or human rights law; if such risks are evident and cannot be mitigated, then a transfer cannot take place.

Of particular concern is whether the DDIM's accelerated production-to-procurement model may apply pressure on Canada's regulatory regime to expedite permit approvals or relax regulatory oversight. Any such model would be a clear departure from Canada's binding obligations under the ATT, regardless of whether the recipient is considered an ally, or if the transfer comes in the form of military aid.

underscoring the risk such systems pose when in the wrong hands. The expansion of Canada's UAV industry makes effective export oversight over these technologies all-the-more important.

Canada's Controls at a Crossroads

The Defence Industrial Strategy represents the federal government's most significant support for the defence industry in modern history. But scaling-up arms production does not require scaling back the controls governing their transfer, and any notion otherwise is misplaced.



Borodyanka, Ukraine. April 2022.

These safeguards do not exist merely to slow down military acquisitions or to hamper innovation. UAVs are increasingly common on today's battlefields, and their growing availability raises concerns about diversion, misuse, and their potential role in serious violations of international law. For example, in Ukraine, Russian-launched short-range UAVs have become one of the deadliest threats to civilians and civilian infrastructure,

Amid the broader militarization of Canadian industrial policy, officials must ensure that arms exports continue to be assessed on a case-by-case basis to prevent them from contributing to serious human rights violations—particularly as conflicts intensify around the world, and the weapon systems used in those conflicts face greater demand.

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Celebrating 50 Years of Passionate Support for Peace

Written by Fred W. Martin
Photos by Lisa Umholtz

In 1976, Ernie and Nancy Regehr had recently returned from an MCC (Mennonite Central Committee) assignment in southern Africa. They had seen first-hand the destructive impact of politicians who spent scarce resources on military expenditures instead of investing in humanitarian needs.

Ernie partnered with Murray Thomson of the Canadian University Service Overseas, leaders from Conrad Grebel College and its emerging Peace and Conflict Studies program, and several denominations of the Canadian Council of Churches (CCC) to advance peace and disarmament efforts, laying the foundation for what would become Project Ploughshares as we know it today.

The work this team began in 1976 continues to be just as needed in 2026, both globally and right here at home in Canada. The original 'DNA' of Ploughshares was still evident 50 years later at our 50th Anniversary Fundraising Gala held on September 21 at the University of Waterloo.

Over 280 guests packed the venue and enjoyed reconnecting and hearing updates on Ploughshares' current work. CCC president Amanda Currie set the tone as she reflected on the impact Ploughshares has on behalf of churches in Canada, before offering the dinner grace.

"For fifty years, Project Ploughshares has helped Canadians pursue peace through disarmament," said director Paul Heidebrecht. "This anniversary is an opportunity to honour the many people who have made that work possible and to renew our commitment to peace at a time when it is needed more than ever."

Perspectives of several past and present staff and leaders were shared through an anniversary video that is available to view on our website.

The Honourable Lloyd Axworthy presented the keynote address, highlighting the need to sup-



Live music was provided by bandura musician Nataly Zhygaltsova, an educator, musician, and cultural ambassador born in the USSR, raised in Ukraine, and displaced by war to Canada.

port peacebuilding efforts in a time of renewed military spending in Canada and globally.

"If Canada's prepared to take rearmament to the point where we're aiming to provide now over 5 per cent of our GDP for the building of weapons and arms," he asked, "why aren't we prepared to take the same peacemaking issues seriously?"

"This anniversary is in part about celebration of the of the way in which we have built an international order rooted in justice and fairness and in peaceful means, lead in no small part by the pioneers at Project Ploughshares," the former Minister of Foreign Affairs continued.

> "Peace is not some kind of throwaway adjunct: it is an essential part of building security, not just for Canada, but around the world.
> - The Honourable Lloyd Axworthy, speaking at Project Ploughshares 50th Anniversary Fundraising Gala on Sept. 21, 2026

Ploughshares supporters showed their passionate support.

"There was a real buzz in the room as supporters reconnected and were inspired by the updates and Axworthy's challenging address," said Nancy Mann, one of the organizers.

At the Gala, we introduced our Future Fund, an initiative designed to secure Ploughshares' financial future. Our goal is to raise $1 million for a reserve fund, with earnings used to support annual operations. The fund's principal will also provide flexibility to invest in special projects and help bridge unexpected budget gaps.

Over $100,000 was raised, after expenses, at the Gala to kickstart the Future Fund.

"As a Development Committee, we initially hoped to raise $50,000 after expenses for the Future Fund," said Duncan Etches from Vancouver. But with a matching gift of $50,000 from Michael Bauman, that amount was doubled.

"Generous support is critical at this time in our world and as Ploughshares orients itself toward the next 50 years," noted Betty Pries, who chairs the Management Committee.

Throughout the year, we have been reminded of the genuine interest and passion that our supporters have for Project Ploughshares with many guests joining us at our 50th Anniversary Gala, the launch of our commemorative exhibit at the Grebel Gallery, and at receptions we have hosted across the country.

It is clear that support for peace and disarmament remains as strong as ever, reinforcing the importance and necessity of our work.



Ernie and Nancy Regehr were recognized at the Gala for their work establishing Project Ploughshares.

Make your 2026 gift for peace today.

Support for our work in peace research and action requires financial support, and we are grateful for the many donors who make this possible.

Please watch for a mailing that you can use to send in your year-end donations or go to our website to make your gift.

Donate NOW at **www.ploughshares.ca** to commemorate 50 years of peace research and advocacy at Project Ploughshares!

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50 years PROJECT Ploughshares



What Does it Mean to Prevent an Arms Race in Outer Space?

Written by Miguel Ilustre

On September 14, the United States publicly acknowledged for the first time that it already possesses "on-orbit space control weapons." The announcement marked a historic shift in the international space security environment, challenging longstanding international efforts to preserve outer space for peaceful purposes and prevent an arms race. It also raised an uncomfortable question: Is an arms race in space already underway?

On October 15, I travelled to New York City with support from Project Ploughshares and the Balsillie School of International Affairs to deliver a civil society statement to the United Nations First Committee on Disarmament and International Security on outer space security. Our statement was developed collaboratively with international space security experts and signed by 16 organizations. Bringing our perspectives on preventing an arms race in outer space to First Committee underscored the crucial role of civil society in challenging prevailing approaches and pressing for meaningful action.

The stakes we emphasized in our statement extend beyond military competition. Space systems support services that people rely on every day. A conflict in space could thus threaten international security and disrupt societies all around the world, even in countries far removed from the fighting. It is therefore imperative to prevent military competition in space from escalating into a wider arms race.

For decades, efforts to prevent an arms race in outer space have sought to keep weapons and other capabilities designed to disrupt, disable, or destroy space systems from becoming accepted features of military competition. Once such capabilities become normalized, they can encourage further military expansion as states respond to one another's actions. Interrupting these cycles of action and reaction becomes increasingly difficult as an arms race takes hold.

The statement we prepared called on states to take concrete actions to match their declarations of peaceful intent and opposition to the weaponization of space.

States must exercise restraint in developing and using capabilities that threaten space systems and avoid normalizing destabilizing military activities. Such restraint can help interrupt the cycles of action and reaction that drive further military expansion.

States must also make their military activities and commitments to restraint more transparent and observable. Notifications of potentially hazardous activities, consultation mechanisms and crisis communication channels can reduce misunderstandings and help prevent incidents from escalating into wider conflict. These measures can also help protect civilian space-based services and the orbital environment.

These efforts must be supported by multilateral action. The Open-Ended Working Group on the Prevention of an Arms Race in Outer Space (PAROS) in all its aspects provides an important forum for advancing both legally binding and voluntary measures. Practical standards for responsible behaviour can reduce risks in the near term, while states also work toward effective and verifiable legal constraints on destabilizing capabilities and activities.

Ultimately, preventing an arms race in outer space will require legal measures at the international and national levels, as well as shared standards for responsible behaviour in space. States must act now to stop the arms race from becoming entrenched.



Project Ploughshares intern Miguel Ilustre delivering a civil society statement at the United Nations in New York City, US, on October 15, 2026. Photo: Laura Varella.

Season's Greetings



From all of us at Project Ploughshares, we thank you for your support and wish you and yours peace, good health, and safe travels during the holiday season.

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