

CANADIAN ARMY



TODAY

FALL 2025 | VOLUME 9 | ISSUE 2

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- DefenceX

Inflection Point
Restructuring for a division

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A member of the Multinational Brigade Latvia on a foot patrol during Ex Resolute Warrior in November 2025.

Photo: Sgt Genevieve Lapointe

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EDITOR'S NOTE



Much of the initial commentary on the Canadian Army's restructuring plan will likely be on the Manoeuvre Division and the capabilities required to conduct major combat operations across the Atlantic or over the Indo-Pacific. How will the division fight? What new or additional equipment will it require? How will it be sustained?

All are important questions as the roles and responsibilities of its combat brigades are refined.

More important, though, could be the evolution of the Defence of Canada Division. The Army has often taken the position that training for the highest-intensity end of the warfare spectrum will enable soldiers to perform all its tasks, including aid to civil authorities.

Most of the capability and training the Army needs for its Defence of Canada Division will be the same as what's required for the Manoeuvre Division. But as the frequency of wildfires, floods, and other natural disasters increases, the Army may need to rethink that long-held belief. Confronting a forest fire requires specialized skills, for which civil agencies train extensively.

And as presence across the Arctic expands, more specialized skills may be needed beyond the periodic immersion with the Canadian Rangers many Regular and Reserve Force soldiers experience — and beyond the new tasks contemplated in the Canadian Ranger Enhancement initiative.

As part of the Army Modernization Team's (AMT) ongoing series of war games, there will be two exercises in 2026 to first define and then refine domestic operations.

This spring, the AMT will create three teams to "look at historical data [and] some of the current tasks that we have" to understand the scope of domestic responses, explained Colonel Cédric Aspirault. Then, in October, planners will help refine the options further, injecting "extra frictions" to determine "which one will be the best."

"Fires are a good example. Do we train firefighters for the Defence of Canada Division? Do we include that in their training as part of the new training system?" Do different provinces require different levels and type of support, and could the Army leverage their training?

"It's something that we're going to look at," he said. "But having brought the key players from each division and the new divisions in to play with real data within a structure game, that will help us to inform the Army Commander." ■

Chris Thatcher, Editor

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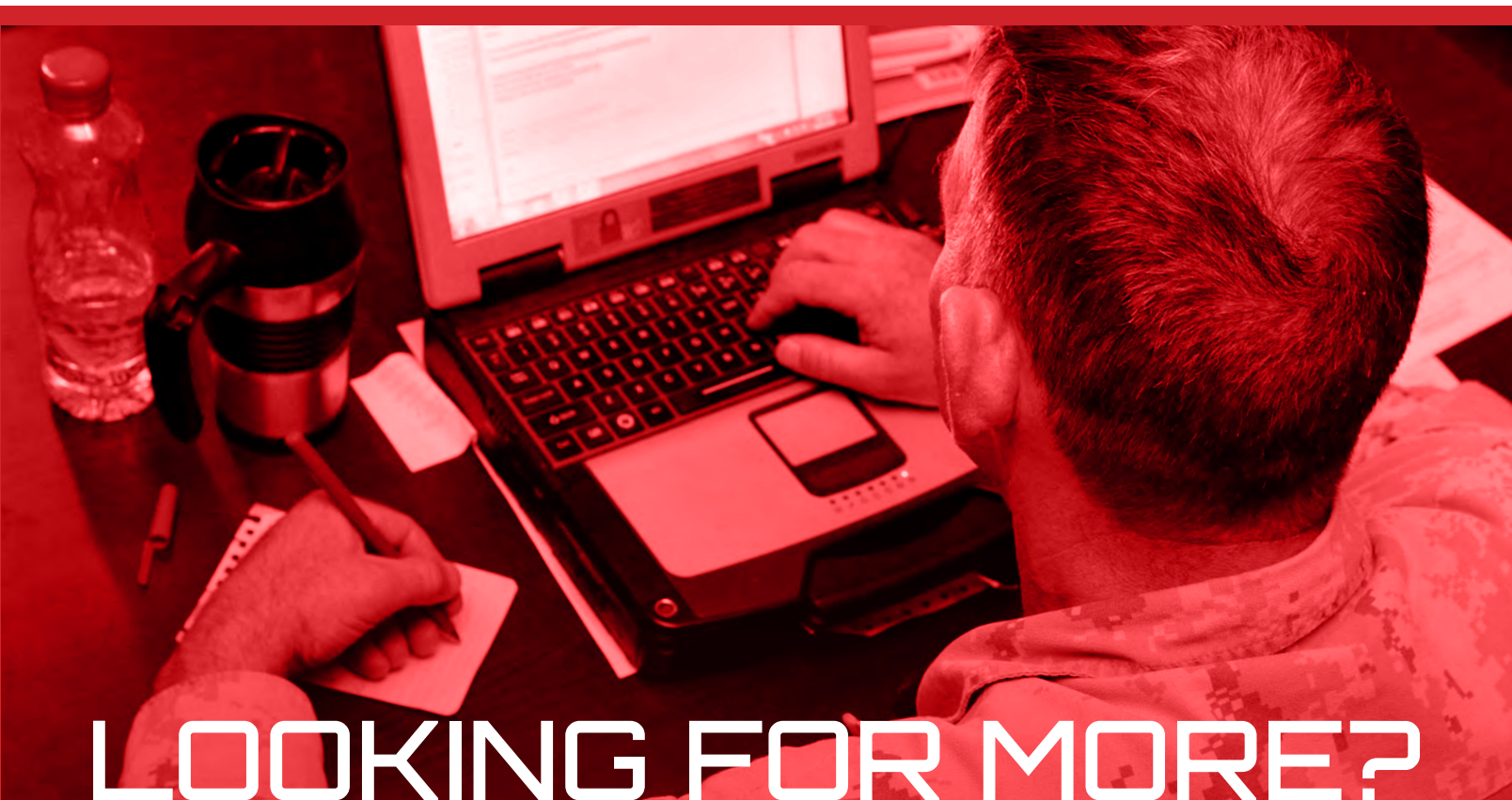
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FIGHTING THROUGH THE CYBER THREAT



A member of 2 Signal Squadron during Ex Hermes Reach in Petawawa in October. Photo: MCpl Sarah Morley

From the moment soldiers arrive in Latvia on Operation Reassurance, they are subject to an onslaught of cyber threats. Cellphones, laptops, smart watches and other personal electronic devices are the obvious targets, but so too are Army vehicles, weapon systems, sensors, and any other point of entry into the wider Canadian Armed Forces (CAF) digital ecosystem.

The Army has been developing the concept of Cyber Mission Assurance (CMA) for several years, working through the Director Land Equipment Program Support (DLEPS) staff to ensure the platforms it acquires and the supply chains that support them are aware of cyber vulnerabilities and taking steps to close them.

It has also been working to improve the security of its communication and information systems and tactical networks that face a barrage of cyber and electronic warfare attacks the moment they are activated on

operations.

The focus is now shifting to the individual soldier. In early November, the Army G6 staff, together with CMA experts from DLEPS and Defence Research and Development Canada (DRDC), hosted a series of information sessions in Petawawa with soldiers from 2 Canadian Mechanized Brigade Group in the midst of pre-deployment training for the next rotation of Op Reassurance.

More than cyber awareness, the unclassified briefing was a walk-through attack vectors and cyber effects already present in the region and a stark reminder for soldiers, many about to embark on their first tour, that the weakest link can be an unwitting and inattentive human.

The pilot initiative, which is supported by the Assistant Deputy Minister (Materiel) group and the Canadian Armed Forces Cyber Command, was intended to make soldiers not only more aware, but more resilient.

“[We’re] trying to tap into the people aspect of the problem, the training that we give [soldiers] so that they can react [with] the knowledge and understanding [about] what it is going to look like and how to fight through it,” explained Major Jon Barnett, the Army’s deputy G6.

The topic of cyber mission assurance has been around since “we started introducing more digital concepts into the Army,” he noted. But it has taken on more significance since the start of Russia’s war in Ukraine and the expansion of the Canadian-led Battle Group in Latvia to a full-fledged multinational brigade.

“I think that’s the point at which leadership across the Army started to realize our current approach related to digital force protection and cyber resilience training won’t be effective if ever we go into a conflict like that,” said Barnett. “So, we’ve started to shift our approach. We want to be better prepared

to address this before it actually occurs.”

At the direction of the Canadian Army Commander, the G6 team has leaned on the work of DLEPS and DRDC to develop a CMA program to prepare soldiers to operate within a digitally contested environment, and fight through any cyber incidents.

“I use the analogy of the service rifle,” said Barnett. “We’ve engineered the weapon to do what we want it to. We’ve optimized the weapon so that it’s more efficient, and we’ve taught the soldier how to use it, including immediate actions when it breaks down. The last step in the TTPs (tactics, techniques and procedures) for a rifle stoppage is pull trigger, rounds keep going down range. We need to do the same thing with our digital systems.

“We have engineered and optimized the systems for the purposes of commanders managing the battlespace, but we also need to teach operators that problems will happen, and when problems



Dr. Roghieh Rousina-Webb of the Land Cyber Materiel Assurance Program

happen, here's how you react. Because the ultimate goal is to continue — you cannot become the casualty that then stops the fight."

The objective is not to develop cyber operators, but rather operators who can keep doing their job when communications and land tactical systems are compromised, one presenter from the CMA program office told participants. As with a jammed weapon, clear it and then continue firing.

Modern military equipment is increasingly digitized and interconnected and relies heavily on software and connected systems, which amplifies vulnerabilities for cyber attacks. To help troops understand how attacks unfold, presenters introduced the concept of a cyber kill chain, a series of steps attackers take to scout weaknesses, deliver malicious code, and take control.

Presenters shared real-world examples from public research and military exercises to show

how everyday technology — often cheap and easy to get — can be used to exploit vulnerabilities in equipment.

Much has been made of the 45 million lines of code in an F-35A fighter jet, but a modern smart car now contains over 150 million lines, and all of it is susceptible to attack. Hackers have used a flaw in Sirius XM to gain access to systems in several makes of cars, knowing only the vehicle identification number. The Pentagon has acknowledged successful cyber attacks by unspecified adversaries on XM1296 Stryker Dragoon variants. And during DEFNET, a French military cyber warfare training exercise, a 24.5-ton Griffon armored vehicle was jammed and disabled by a repurposed construction rangefinder.

Soldiers were reminded that "anything connected to equipment is an attack vector," and even something as simple as using a charging cable bought at a local

gas station or bringing a personal device into a maintenance hangar could provide an opening. The DLEPS team noted that hackers have burrowed threats into the code libraries upon which software and hardware is often constructed, so many basic systems could be compromised.

The takeaway? As gear gets smarter and more digital, the risks grow. Understanding the kill chain process is key to staying ahead of cyber threats.

The intent for the pilot initiative is to develop a graduated and standardized CMA training program that can be delivered in phases as soldiers move through their career, receiving occupational specific cyber training and then mission-tailored briefings as they prepare to deploy to a theatre.

"We don't want this to be an episodic engagement where it's a reaction to a momentary problem," said Barnett. "Digital systems are integral to everything that

we do within the Canadian Army and in the wider CAF. As much as we're trying to teach users how to embrace those digital technologies from the start of their careers and throughout their careers, we also need to teach them the consequences and vulnerabilities, and how to work with them."

After each session, soldiers were asked to participate in focus groups to help fine tune the presentations and development of a CMA training program. Preliminary feedback from troops "was both unexpected and encouraging," said Dr. Roghieh Rousina-Webb, section head for the Land Cyber Materiel Assurance Program within DLEPS. "There is strong interest in further integration of the CMA concept, with many expressing a desire to see it institutionalized as a mandatory component of future Army training and deployments." ■

NATO DIANA EXPERIENCE ACCELERATES CANADIAN INNOVATION

By Canadian Army Today Staff

In September, NATO's Defence Innovation Accelerator for the North Atlantic (DIANA) announced the selection of 15 companies to advance to the second phase of its DIANA Accelerator Program, a crucial step in a novel approach to turn emerging and innovative technologies into operational capabilities for the Alliance.

The 15 cutting-edge businesses, drawn from 32 countries, were selected from a cohort of 73 companies that participated in the first phase of DIANA 2025, which attracted over 2500 applicants.

Among the companies receiving €300,000 in funding, access to NATO test centres, and tailored support, are Canadian start-ups Reaction Dynamics and TACTIQL.

Reaction Dynamics, based in Longueuil, Que., is developing a suite of sustainable, next-generation space transportation systems while Ottawa-based TACTIQL has developed a software platform that enables universal interoperability between intelligence, surveillance, and reconnaissance (ISR) platforms and command and control software to allow real-time distribution of mission-critical sensor data.

Officially launched at the 2022 Madrid Summit, DIANA represents a strategic shift in how NATO approaches technology and innovation. Traditionally, defence research within NATO has been driven by national programs and large defence contractors. DIANA is seeking to change that equation by focusing on dual-use technologies in cybersecurity, biotech, quantum computing, artificial intelligence, autonomy, robotics, hypersonics, big data processing, and space — bridging the gap between startups and the military.

"DIANA is NATO's innovation



Photo courtesy of TACTIQL

engine," explained James Appathurai, managing director for the program. "We are finding the most innovative technologies from the market; we are helping these talented innovators fine-tune their technologies and grow their businesses; and we are connecting the companies to end users so that NATO defence ministries can adopt new technologies at the speed of relevance, including through DIANA's Rapid Adoption Service."



Mike Nelson

The initiative is built around three core pillars: a network of accelerator sites, test centers, and a strategic innovation fund to help ideas rapidly move from concept to deployment through mentorship, business development support, and access to defence and security experts.

DIANA's physical footprint spans both sides of the Atlantic. There are currently 20 accelerator sites and 180 test centres across the Alliance including two accelerator sites and 13 test centres in Canada.

TACTIQL was founded in 2022 by Mike Nelson, a 13-year veteran of the Canadian Armed Forces (CAF), with time in working with the Navy, Army, and Special Operations Forces, and in the Department of National Defence promoting the adoption of emerging technologies.

The company's flagship product, KILO — now being promoted as FULCRUM — emerged from the Innovation Solutions Canada (ISC) testing stream in 2023, and has been trialled by the Army to digitize the chain between ISR sensors,

decision makers, and effectors.

At present, sensor data, such as airborne camera feeds, require a lot of manual interaction to be usable for a decision-maker and effectors, Nelson said. A soldier monitoring a screen often communicates observations and analysis by voice or manual data entry for that information to be plotted on a map, entered into battle management software, or formatted for a gunline.

"I consider ourselves the data plumbers," he explained. "We take raw sensor data and automatically condition and enrich it to be compliant with military standards, so that it can be digitally ingested, analyzed and distributed throughout the battlespace in real time."

Though smartphone-like devices are now part of a call for fires, dropdown menus and other steps require human interaction, he noted. "Somebody still has to look at that threat — often leaving them exposed — calculate where the threat is, type in grid coordinates, etc."

TACTIQL enables the automation of some of those processes by

digitalizing, standardizing and translating sensor data into the appropriate message format dissemination and consumption, such as variable message format for artillery and mechanized infantry, or Link 16 and Link 22 for fighter aircraft and warships.

Applying to NATO DIANA was a long shot, Nelson admitted. But he saw it as an opportunity to learn about the U.S. and NATO defence markets. More than anything, it created visibility within NATO.

TACTIQL was among 73 companies selected from 2,600 applicants for the Phase I challenge, a six-month accelerator program intended to help the company refine its value proposition, build out its strategy, and collect user feedback from NATO exercises and testing centres to refine its product.

Nelson believes the company was selected for Phase 2, which focuses on scaling up the technology and wider adoption across NATO, because of the growing interest across the CAF for its product, as well as KIL0/FULCRUM's performance at several exercises, including Bold Quest.

"NATO DIANA gives you a really good understanding of the defence ecosystem across the Alliance," he said, but it requires relentless customer focus to understand today's problems they are trying to solve, rather than trying to impress with emerging, but not yet ready, technologies that are unlikely to be adopted for several years. Canadian start-ups with great technology might find it a struggle to gain traction with the military "if their product isn't helping solve

the most important problems they are experiencing now. That is just the reality when you are trying to 'catch-up' and get to where you need to be."

The NATO experience also opened doors in Canada. Over the past 12 months, TACTIQL has signed memorandums of understanding with Calian Ventures and Kongsberg Geospatial to pursue joint opportunities in the defence market, helping the business accelerate and scale its "product roadmap."

Nelson credited the young company's early success in part to support from the department of Innovation, Science and Economic Development and its programs like ISC and the Industrial Research Assistance Program (IRAP), as well as the Scientific Research and

Experimental Development tax incentive, which mitigated some of the initial R&D risk.

"I would not have had the money to start the company if it was not for IRAP, we would not have the traction we have if not for ISC," he said.

As an early adopter of KIL0, the Canadian Army has been pivotal to NATO and U.S. military access, Nelson stressed. In recent years, the Army has "expanded its risk appetite [for emerging technology] and its belief in the importance of working with companies like TACTIQL," he said. "They know the Army needs to evolve and they know there's a place where we fit within that ecosystem. The Army has been absolutely incredible supporters of that ecosystem." ■



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LIGHT UTILITY VEHICLE ROLLING CLOSER TO REALITY

By Ken Pole

The Canadian Army's current fleets of Afghanistan-era Mercedes G Wagon tactical transports and other civilian-based sport utility vehicles and light trucks are in dire need of replacement. That was acknowledged when the Light Utility Vehicle (LUV) project began in 2017.

After a series of delays, including the disruption of the 2020 global coronavirus pandemic, and concerns over a ballooning budget, the project was reassessed and split into two streams in late 2024: LUV COTS and LUV MOTS.

LUV COTS is focused on procuring up to 700 off-the-shelf commercial vehicles for general utility and logistics for domestic use only. The Government Motor Vehicle Ordering Guide is used by all departments and agencies to buy off-the-shelf as needed. Deliveries will start in 2026 with the aim of delivering about 70 vehicles annually.

Meanwhile, LUV MOTS remains a work in progress, focused on procuring up to 2,200 protected air-transportable vehicles in Command and Reconnaissance, Military Police,

Utility, and Cable Layer variants.

The LUV project is now in the hands of Major Varun Vahal, a 20-year armour officer with the Lord Strathcona's Horse (Royal Canadians). When he became LUV project director in 2023, fresh off a stint as commander of the 1 Canadian Mechanized Brigade Group Reconnaissance Squadron, he brought a wealth of field experience to the job.

Shortly after the project got the green light to move into the definition phase of defence procurement in late November 2023, Vahal's team put out invitations to qualify to potential suppliers. Six emerged: four in Ontario and two from the United States.

Armatec Survivability Corporation of Dorchester is understood to be basing its proposal on the latest iteration of the Mercedes G Wagon while Roshel of Brampton has offered its Senator protected vehicle based on a Ford F-550 pickup chassis — more than 1,000 were bought by the Canadian government and donated to Ukraine. (Last summer, Ukraine's National Guard released helmet-camera footage showing a Senator

with a special forces team driving away without injuries after a direct Russian drone strike.)

Teradyne Armored Vehicles of Newmarket and GM Defense Canada of Oshawa are taking similar approaches to the LUV project. Teradyne is offering its Ghurka, based on the Ford F-550, while GM is putting up its Chevrolet Silverado Heavy Duty.

The U.S. contenders are Oshkosh Defence of Oshkosh, Wisconsin, and AM General of South Bend, Indiana. Oshkosh is offering the JLTV A1 while AM General is proposing the High Mobility Multipurpose Wheeled Vehicle (HMMWV), better known as the Humvee.

With six qualified suppliers interested, the procurement has moved on to Review and Refinement of Requirements (RRR), which essentially breaks the process into “digestible chunks,” as Vahal put it.

“We started with the statement of requirements specification, then we got into what the bid evaluation will look like, and so on,” he explained. “The idea is that at the end of the RRR phase, our qualified suppliers will

have seen our request for proposals (RFP) in its totality — in parts. Then, based on their feedback and what works for us, we'll refine our RFP.

“This gives us the advantage of communicating clearly from the outset, so the companies aren't waiting on us to come up with this RFP in two or three years after we've entered [the] definition [phase]. They're part of that process, ensuring that what we're asking for is realistic, that it's achievable, and meets our requirements. It's vitally important, and I would say a great advantage to the project — our qualified suppliers are very forthcoming with information.”

Vahal noted, “from the Army's perspective, the troops will get the vehicles as originally scheduled, between 2030 and 2034.”

Given the current Canada-U.S. political climate, it was logical to ask whether there is any stated or implied pressure on the project office to buy Canadian. “We are carrying on with the competitive procurement strategy we have,” Vahal replied. ■



Photo: CAF Imagery Technician



Photo: CAF Imagery Technician

PRINTING AIDS AT THE POINT OF NEED



Photo: CAF Imagery Technician

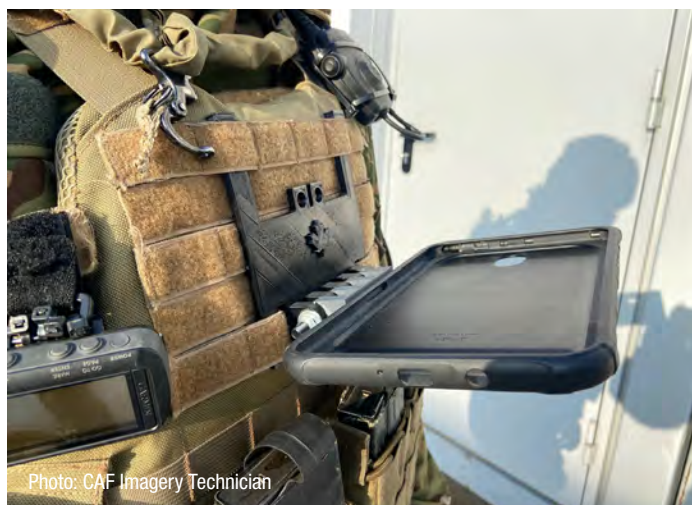


Photo: CAF Imagery Technician

By Canadian Army Today Staff

As modern militaries confront increasingly dynamic logistical challenges, the ability to adapt quickly — often at the tactical edge — has become a decisive advantage. For the Canadian Army, additive manufacturing, more commonly known as 3D printing, is emerging as a practical tool to solve small but persistent problems on deployment.

While still in its early stages, the Army is testing and applying 3D printing on operations, most notably on Op Reassurance in Latvia and Op Unifier in Poland.

These efforts are modest compared to some allies' experimentation, but they signal a growing recognition: When deployed units can design and manufacture solutions on the spot, they can reduce reliance on supply chains, accelerate innovation, and tailor equipment to operational needs.

As part of the Canadian-led multinational brigade in Latvia, the Army has established a small 3D printing capability to support mission planning and day-to-day staff functions. Although the technology is still limited in scope, it has already proven its value in several niche applications.

The printers are primarily used to create small accoutrements that

improve planning, visualization, and quality of life for headquarters personnel. These include map holders, planning aids, and miniature model kits used in operational planning or command post tracking. In a headquarters environment where battlespace visualization is essential — and often specific to the terrain, force structure, or scenario — custom-built models provide planners with better situational understanding than improvised substitutes.

More importantly, the 3D printing capability empowers the Brigade's staff to rapidly iterate. If a planner needs a new symbol, a unique terrain marker, or a modified piece of planning kit, the turnaround can be measured in hours rather than waiting days or weeks for supplies to arrive through the NATO support system.

On Op Unifier, where Canadian Armed Forces personnel are training members of the Security Forces of Ukraine, the Engineer Training Element (ETE) has integrated additive manufacturing directly into its curriculum.

The ETE employs 3D printing to produce realistic training aids for the Basic Sapper Course, a critical component in preparing Ukrainian combat engineers. The printers generate a variety of simulated

munitions models, including mines, fuses, and other explosive devices. Designed to replicate operational equipment as closely as possible, these models allow instructors to run hands-on demonstrations and practical exercises without relying on actual munitions.

Where 3D printing truly enhances training value is in the integration of electronics. Many printed devices are fitted with buzzers and simple circuits that provide immediate feedback during drills. If a trainee triggers a device in a scenario — through incorrect handling, poor placement, or procedural errors — the buzzer activates loudly.

"The circuitry built into our 3D-printed aids give students instant feedback," explained an ETE instructor, whose name is withheld for operational security. "They immediately know when their actions would have set off a device and can take steps to improve."

The tool also enables instructors to design progressively more complex and unpredictable scenarios, reflecting the realities faced by engineers on the battlefield.

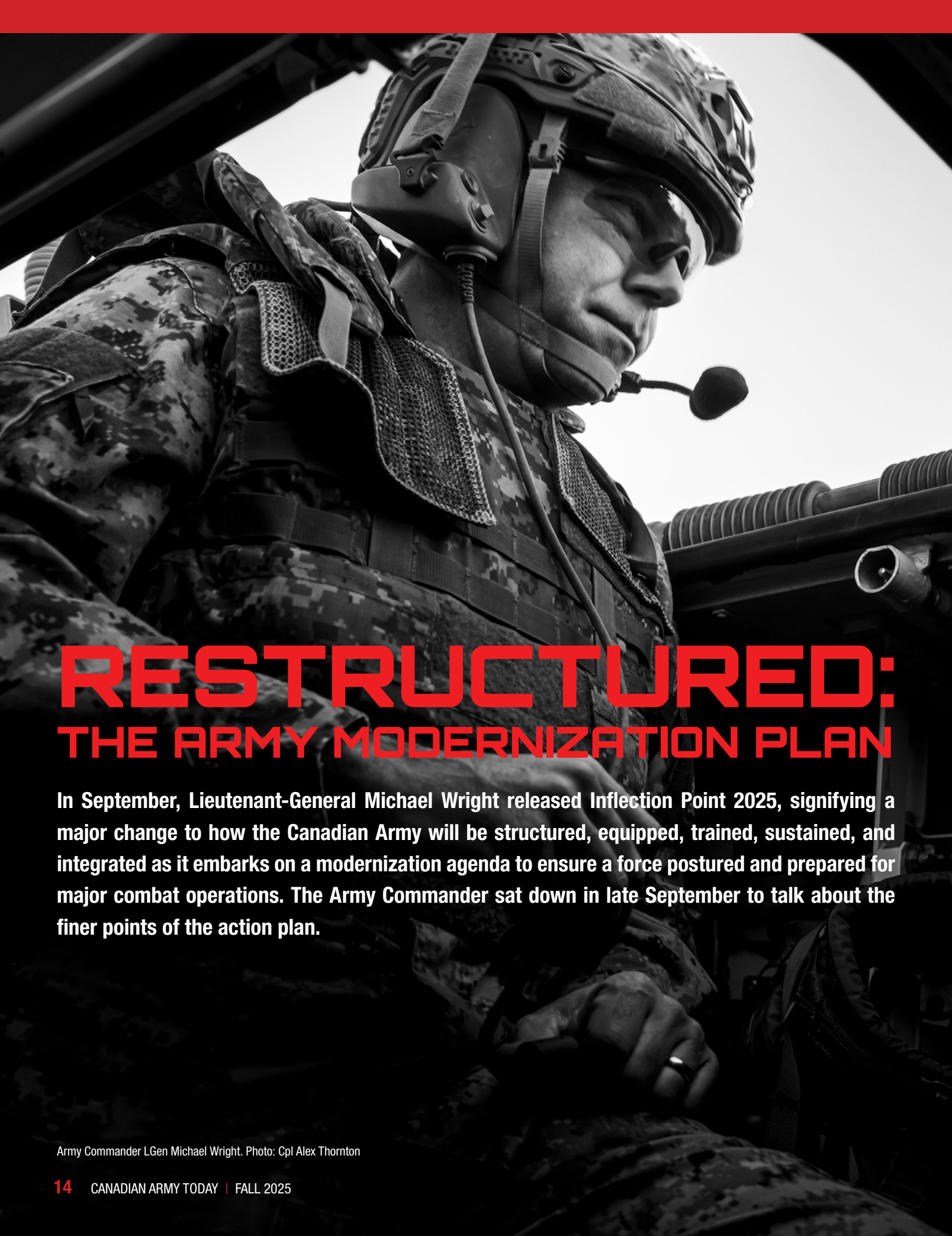
In addition, 3D printing's affordability and adaptability allows the ETE to rapidly produce custom, lesson-specific models at minimal cost. When operational requirements

evolve or training priorities shift, instructors can update designs, print replacements, or modify components within days. Although 3D-printed items are not highly durable, their low cost and ease of replacement make them ideal for high-use training contexts.

Army units have been experimenting with additive manufacturing since at least 2014, but the technology was first trialled in an operation when two 3D polymer printers were shipped to Latvia in September 2021.

The first product printed on Op Reassurance was modest, a knob for crypto radios that otherwise would not have been serviceable. But in subsequent rotations, 3D printers were forward deployed with the battlegroup, and were used to make spare parts and other customized equipment. Significantly, the cadre of technicians in theatre able to operate the printers grew exponentially.

The continued evolution of the technology, though still modest, is an indication that 3D printing is gaining traction. Its use remains selective, but it is delivering niche items much more efficiently than would otherwise be the case. ■



RESTRUCTURED: THE ARMY MODERNIZATION PLAN

In September, Lieutenant-General Michael Wright released Inflection Point 2025, signifying a major change to how the Canadian Army will be structured, equipped, trained, sustained, and integrated as it embarks on a modernization agenda to ensure a force postured and prepared for major combat operations. The Army Commander sat down in late September to talk about the finer points of the action plan.

Army Commander LGen Michael Wright. Photo: Cpl Alex Thornton



A section attack during Ex Resolute Warrior in Latvia in November 2025. Photo: Sgt Genevieve Lapointe

You describe this as a generational shift for the Army. Could you to expand on the significance of that — it's a strong statement.

It's a strong statement, but it's bolstered by what the Chief of the Defence Staff says, and she makes it clear that the mission of the Canadian Armed Forces (CAF) is to defend Canada. For us, it means getting away from planning for a force that, for decades, was built on contribution warfare. And to be capable of leading combat operations, it's about getting up to the divisional level. Why the divisional level? It gives us national agency, national credibility, national sovereignty. It's a level we need to operate at if we want to detect, deter or ultimately defeat threats to Canada.

By contribution warfare, [I mean that] Canada has been a contributor to coalitions, but we've never been able to build the full package. And we can see, not only with the importance of what we're doing on NATO's eastern flank, but also in our ability to defend Canada, that we can't rely on allies to necessarily provide some of those high-value war fighting roles. So, it is a big shift. It also requires a shift in mindset across the Army.

What are high-value war fighting roles?

We've got 50 major capital projects underway for the Army. A lot of those just represent bringing our capabilities [up to the level] where they need to be now. Our M777 towed howitzer served us incredibly well during the counterinsurgency battle in Afghanistan, but all we have to do is see the modern battlefield to understand it's no longer fit for purpose. A high-value war fighting role is not an army solely of drones, nor is it an army solely of tanks. There must be a mix of mass and precision firepower. So, for Indirect Fire Modernization, we need to update from the towed howitzers to self-propelled howitzers, and we need to get the number that would actually be required for missions that the government could call upon us to do anywhere around the world.

For Long-Range Precision Strike, we've put in a letter of request to the U.S. government that would then result in negotiations between the U.S. and Canadian governments for the HIMARS, a system that's battlefield tested and capable of not only providing us the capabilities we need outside of Canada, but could also be part of a joint anti-access/area denial system within Canada.

For Ground-Based Air Defence, last year we

fielded the very short-range air defence (VSHORAD) system in Latvia, and we're going to be putting it onto a vehicle there as well. But now we're looking to accelerate not only the introduction of a short-range air defence (SHORAD) system in Latvia, but importantly, those VSHORAD and SHORAD systems here in Canada.

The fourth priority is Domestic Arctic Mobility Enhancement (DAME) to replace the BV 206. The Arctic has always been important, but more so, I'd say, because of what we're seeing in the international order, and because of the focus that our government has put on the North.

Those are the four, but then there's the plus one. There's integrated command and control systems and everything we need — from radios to software to computers, cyber protection, right connections, the intelligence enterprise, the targeting enterprise — so that we can integrate it within the Army, across the joint force, and with allies. With this one, there are still a lot of challenges that we need to get through, both at the Army level, but then across the CAF. I'm still concerned about being able to move at pace to introduce those systems. [But] once we can deliver Land C5ISR, that will get us what we need to modernize the force.

Do those high-value war fighting roles better support a divisional structure?

When we talk about capabilities like long-range precision strike, ground-based air, self-propelled artillery modernization, those are truly capabilities that are divisional level. And just as we have moved up from the battlegroup to brigade, now we need to move up to the division. We're seeing the same efforts by a number of our allies. Some are calling it modernization, some transformation, but many countries are involved in the same type of effort. For some countries, it's getting to the brigade level. For others like us, it's getting up to the division level. And then for a country like the U.K., it's getting back to the corps level. The last time the Canadian Army truly went out in the field and exercised at the division level was 1992. The same year I was doing phase 2 infantry training in Gagetown, that was the last hurrah for division level training.

What does that new division structure ultimately look like?

What it ultimately looks like for the Army is moving away from a regional administrative perspective to having divisions that have a specific purpose and mission. These are not small

changes. First, the Defence of Canada Division is going to be Reserve heavy, augmented by the Regular Force. We will rely on the Primary Reserve for conducting operations in Canada, whether that's in the Arctic, on Operation Lentus, or, as we did this summer, supporting the G7 Summit.

There is a cross-government discussion about mobilization, and I look at that Defence of Canada Division as the basis for mobilization. We have Primary Reserve units located in over 120 communities, and we're maintaining those units. Might some of their roles change? Absolutely, as we understand what we need to do to update the roles and tasks of the Reserve. Also, within that Defence of Canada Division, we're going to be consolidating our five Canadian Ranger patrol groups. Right now, our Rangers operate under our current four regional divisions. It works in some cases geographically, but there will be more synergy and commonality when we have all five of those patrol groups working under a Canadian Ranger formation.

The other part of the Defence of Canada Division, and this is going to take a lot of planning, is integrated air and missile defence. The Royal Canadian Air Force is leading the project, and this summer we sent three staff officers to Air

Force headquarters to be completely embedded in the planning team and to help determine the Army's role in integrated air and missile defence of Canada. That could depend on the number and location of critical infrastructure, critical assets across Canada that need to be defended.

Second, the Manoeuvre Division is our current Regular Force brigades — 1 Brigade out West, 2 Brigade in Ontario and New Brunswick, 5 Brigade in Quebec, and 6 Brigade split between Ontario and New Brunswick. Then we're adding some new capabilities. For long-range precision strike and indirect fires, we will stand up a fires brigade within the Manoeuvre Division that will be able to service the needs of those brigades, but based on what the division commander determines are the requirements. It will also have the Army's first unit specifically for drones.

The Manoeuvre Division will also have a sustainment brigade. That's going to take us a little bit longer because one of the areas we've under-invested for years, if not decades, has been combat service support. So, we need to have not only the service battalions within those brigades, but we also need a division that is specifically looking at the sustainment of the Army.

The other new formation in that Manoeuvre



Soldiers from the 3rd Battalion, Princess Patricia's Canadian Light Infantry during Ex Resolute Warrior in November 2025. Photo: Sgt Aydyn Neifer

Division is a light infantry regiment. Think our current light infantry battalions, but grouped under one command, not geographically. They would still hold that Global Response Task Force responsibility, but also be a standing force for if something happens in the Arctic or anywhere around the world — they will be (mostly) the Army's first effect out the door.

Do those brigades retain their names, their locations?

Yes, 1, 2 and 5 Brigades all maintain their names. We haven't figured out for the other brigades yet exactly what we'll designate them. We've got some analysis to do for the location of the headquarters and then the nomenclature of the divisions. But we're not going to reinvent the wheel: We'll respect history and heritage within the Canadian Army.

Does this consolidation streamline some of the support — administration, maintenance, and so forth — within the Army?

That's an excellent segue into the third division: the Support Division. Our Canadian Division Support Groups across the country will all be working for a Support Division commander, who will be responsible for ensuring that we have base

and institutional support across the country, that we're better tied into the national supply chain than we are currently, while still acknowledging that the garrison in St John's is different than the base in Meaford or Wainwright. The thought there is, we're going to make sure there's integral support within the Defence of Canada and the Manoeuvre Divisions. But I don't want those two division commanders to have to worry about that behind-the-scenes support — that's the Support Division.

The last structural change is a Training Formation, a rebrand of sorts of the current Canadian Army Doctrine and Training Centre, which we'll explore in more depth in the Spring issue. Does it have a role in onboarding soldiers faster?

For the first time in over 10 years, the CAF met its strategic intake plan on the Regular Force side, and we're getting good numbers in through the Primary Reserve side. But as we're getting people in, as we're rebuilding and reconstituting, there is the challenge of making sure we can get them onto training and keep them engaged and interested.

We're about to do a couple of pilot courses

that are going to ensure that every new soldier in the Army has the skills to shoot, move and communicate, and then determine what they need to do in their next phase. It will depend on which division they're going to be employed in. If you're going to be operating a piece of heavy engineer equipment with the Manoeuvre Division over in Latvia, that's a lot different than what we would need if you're going back to a final year of university, but will be available for Type 3 firefighting tasks.

What happens to 1st Canadian Division? Does that change?

That's an ongoing discussion between the Army and Canadian Joint Operations Command right now. CJOC needs a joint deployable headquarters.

With the government's commitment to more funding, are there other projects critical to modernization?

One of our challenges was that a lot of our national procurement was going towards just keeping old fleets going that need to be divested [and replaced]. Now we're getting more funding for national procurement, which will help us accelerate some programs. But what also needs to accelerate is bringing in those other few dozen



Engineers from the Multinational Brigade Latvia conduct a bridge ops in November 2025. Photo: Sgt Genevieve Lapointe

projects that I haven't mentioned: New personal protective equipment, anything from clothing to updated body armor, frag vests, tactical vests and helmets. With the increase in funding, we're looking to put as much money as we can towards projects like that. In part, that helps with retention. Deployments are great, but what a soldier really wants, I think, is getting new equipment in their hands, like the Canadian Modular Assault Rifle.

Inflection Point 2025 notes the convergence of several technologies, including autonomy and uncrewed aerial systems (UAS). What are you hoping to achieve near term?

We have the Minerva Initiative, which is less a project or process and more about working with Canadian industry. There are tons of Canadian companies, including small- and medium-sized companies, producing uncrewed technology. There is so much innovation within industry, and with our soldiers. We want to get as many drones into the Army as possible and get our soldiers used to working with them, and to operating in a persistent UAS environment. And then we can determine what works and what can be scaled. I would like a recce sergeant in an infantry battalion to have drones, a sergeant who's going to be

leading a convoy to have drones; the soldiers providing protection to our medical facilities to have drones. What are the right types of drones that exist now? And then, how can we make sure we're able to quickly iterate? There's great work being done as part of the Minerva Initiative, but we can't do it quickly enough, and we certainly can't do it quickly enough for our soldiers, because they are seeing what's happening on the battlefield.

How does establishing three priority theatres of operation affect what and how you modernize, especially when it comes to manoeuvre in the Indo-Pacific?

We are challenged with being an Arctic, an Atlantic, and a Pacific nation. The number one priority is always going to be the defence of Canada. There's a lot that we need to look at, because the Army has, over the course of decades, been predominantly focused on force generation for deployed operations. So, there's putting that deliberately number one. Then there's continuing to make sure we have the correct forces in Latvia, and then trying to determine what the role of the Army is in the Indo-Pacific. This is where I look at a country like Australia, that has made specific decisions to go for a more amphibious or littoral

army. That makes sense for them based on their geography and their most likely tasks. For us, it would come down to the coalitions or alliances we would be working in, and what they would need us to provide from a land force perspective. But, yes, for some of the high-value war fighting roles, the challenge would be getting them from island to island.

Lastly, you have a modernization order and an implementation directive queued up. What are your next steps?

Now the really difficult job begins. At Army Council, I looked at my current division commanders and said, 'Okay, the Army modernization team that was in the Army Headquarters now involves all of you, and now we need to get into the detailed planning, because we are rolling those out in 2026.' It's not going to be a snap my fingers and on July 1, we will now be the new divisions. It's going to be conditions based, because we have to ensure we're not jeopardizing our ability to force-generate for domestic or expeditionary operations. We also have to make sure we're maintaining that training pathway. But we're making bold moves to get those new divisions stood up next year. ■



Members of Duke's Company, the Royal Canadian Regiment, conduct urban operations training as part of Ex Resolute Warrior in Latvia in November. Photo: MS Callum Rutherford

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The question is no longer if Canada will spend, but how. An "off-the-shelf" procurement strategy, where Canada simply buys finished products from foreign suppliers, would be a missed opportunity. Instead, Canada needs to seek out genuine industrial partnerships that prioritize technology transfer, in-country manufacturing, and mutual growth with Canadian companies.

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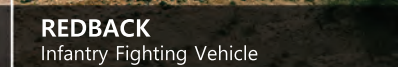
K9 THUNDER
Self-Propelled Howitzer



K10
Ammunition Resupply Vehicle



CHUNMOO
Multiple Rocket Launch System



REDBACK
Infantry Fighting Vehicle

WARGAMING MODERNIZATION

By Chris Thatcher

If you were planning to modernize an army, to change its structures, reposition units and commands, identify gaps in capabilities, introduce new equipment, and bolster its reserve force, where would you start?

Over the past year, an Army Modernization Team has conducted over 400 surveys with soldiers at every level, held working groups, developed some 3,000 documents, and created around 17,000 data points, all with an aim to informing a modernization plan.

Central to that activity has been an ongoing series of war games, exercises designed to challenge conventional thinking and broaden the range of ideas as the Army strives to align its resources with the demands of the current and future force.

Though technically not a war game, the process was launched in September 2024 during the Senior Army Leadership Symposium in Ottawa, when Army Commander Lieutenant-General Michael Wright introduced an exercise, supported

by gamification, to examine the Army's structure.

Working in small groups, the leadership parsed through the strengths and vulnerabilities of the current structure, identifying what did and did not work, before weighing options for the types of units the Army could, should or must have.

Lessons from the war in Ukraine have exposed many of the Army's capability shortfalls, but the exercise forced discussions on structure rather than equipment, explained Major Ed Farren, project officer with the Modernization Team, "because new kit and old structures are not going to get you the best right result."

The exercise compelled leaders to step outside their branches of infantry, armour, artillery, and such, and prioritize units and capabilities from an organizational perspective. It also forced them to make decisions within fixed budgets, accepting trade-offs in a manner not dissimilar to building a fantasy football team while working with a salary cap, Ferren noted.

As leaders worked through how and where to group capabilities, it "exposed a lot of the

mental anchoring within the current structure," he observed.

"If you've grown up in a structure that looks like X, and someone says, design a new structure, you still design one that's X+1, as opposed to Z. So, a lot of the groups returned a mirror image of what we have now, or had some interesting alterations. Everything that was weird and wacky, for example, went into the Atlantic, because we have 6 Canadian Combat Support Brigade there now."

The point was less an analytical exercise and more explorative, said Farren, intended to get people talking and thinking about structure in different ways. "It was an innovative approach in the sense that people didn't feel they'd been forced to come up with the right answer. It was, just come up with an answer that works for you, and then see the variation in the room."

Leaders would come to see the event as the starting gun for modernization, Wright told them. The event would also be the trigger for the creation of the modernization team.



Col David Brassard and members of 5 CMBG during a tabletop war game in Valcartier in April 2025.
Photo: Cpl Jacob Hanlon



Photo: MS Callum Rutherford



An EOD technician on Ex Ardent Defender 2025 in Gagetown in October. Photo: Cpl Samuel Martell

DESTRUCTION AND CREATION

The Army has been conducting war games of various types for decades. But without a digital repository for the reasons and results, “there’s often a lot of repeating the same questions,” said Ferren. “Every couple of years, someone wants to look at the same thing, [but can’t] check the back history to see what was done or how it was done, and therefore build on it.”

Ferren was part of a 2024 unclassified tactical war game exploring infantry optimization. The contest of a battlegroup versus a peer foe in the Baltics generated valuable data about capabilities the Army requires, but it did not represent the “large sea-change that the Army wants to bring in.”

The top line of the postgame report could have read, “the Royal Canadian Infantry Corps requires the Royal Canadian Artillery to have more guns with longer range and more mobility,” he said.

“One of the lessons was that it doesn’t really matter... Yes, a platoon with a drone is better than platoon without a drone, but that wasn’t the problem. The problem was that the adversary’s sense and strike complex was pretty much unassailable, and no one else was able to deconstruct that through either jamming, counter uncrewed aircraft systems, or counter battery. It’s teaching us a lesson that we already know — combined arms is the answer.”

To produce the imaginative thinking modernization requires, the modernization team applied an approach to wargaming based on John Boyd’s 1976 methodology of destruction and creation – gaining strategic advantage in complex,

uncertain, and ever-changing environments by continuously breaking down and rebuilding mental models. The approach provided the foundation for his decision-making cycle of observe, orient, decide, and act, known as the OODA Loop.

In January, a working group of six teams, representing all components of the Army, tackled the difficulties of structural change, using a gamification approach to force interactive discussions as participants worked through questions about where a unit or capability should reside, train, operate, and fight — in major combat operations and what Farren called “left of war scenarios.”

“It became obvious during the conversations that the fight discussion lacked a bit of granularity,” Farren observed. “How well does this thing fight? There was a lot of disagreement about what should and shouldn’t be in a brigade, other than the fact that people were referring to the brigade structure that we currently have.”

Three months later, in April, the modernization team hosted a tactical war game in Valcartier, Que., in which the current structure was compared with an alternative. “It wasn’t an ideal structure; it was just materially different,” he said. “We removed a light infantry battalion and we added more tanks, and we added different equipment based on the planned equipment program.”

The players were comprised of the command team of 5 Canadian Mechanized Brigade Group and other members from the brigade, split into blue and red teams. They executed four runs through the game, one set in 2027 and employing equipment and capabilities the Army expects to have by then,

and the other three in 2033, “which is where the planned equipment program stops,” said Ferren.

Both sides received enhanced capabilities in line with 2027 and 2033, but where blue received much of what the Army will acquire between now and 2027 just to reach a state it should already be at — think ground-based air defence — the red side was able to employ elements of machine learning, quantum computing and artificial intelligence.

“One thing that game really helped show is the sense of urgency,” Farren noted. “In 2027, not only were the results not good, the option space for the brigade wasn’t good — it could only really fight in one way. In 2033, the brigade commander had more options on what to do. In 2027, he had to be defensive. In 2033, he felt more empowered with capabilities to be offensive, which meant red felt less assured of winning, and was a bit more hesitant.”

This fall, following the release of *Inflection Point 2025*, the Army’s action plan for modernization, the modernization team led a war game on mobilization, set during the first five months of the next global war, when the Army and the nation were still in a transition period from peacetime structures and processes to a wartime footing — mandatory military service and nationalization of industry were not included.

The game was preceded by readings on mobilization and several presentations from experts, and the game “was summarized to [the participants] in advance, so they knew what it was covering, and what it was not covering,” said Farren. “We were in the current system, straining to achieve an increase in scale.”



Major Ed Farren



Members of 2 CMBG training for Ex Maple Resolve. Photo: Cpl Nicholas Brunshaw



MNB Latvia Commander Col Kristopher Reeves (left) during a briefing on Ex Oak Resolve in Latvia in August 2025. Photo: Sgt Aydyn Neifer

Using a card-driven system, the event involved 20 separate games, all with the same start state and end objective — getting a certain number of brigades prepared and relocated to Europe — but with each group able to select a mobilization enhancement such as stockpiling munitions, investing in the defence industry, increasing the supplementary reserve, and establishing national parks as potential training areas. An indication of the current state of the Canadian Armed Forces, most opted for personnel enhancements and learned that “people already exist, it’s equipment that doesn’t — it takes time to produce,” said Farren.

“When you have 20 games going on, the variety of outcomes increases. ... Every group was on a different journey. Through the course of the turns, they dealt with dilemmas and disruptions and were given options. We started to see that decision tree [grow]. ... And each of those decisions then affected the game state. It was very realistic.”

The game underscored the importance of a comprehensive plan: For an army that must coordinate myriad mobilization activities so multiple brigades are not vying for the same training areas, even as critical supplies are being directed to ports for shipment overseas; for the defence industries that must know what equipment is required to then align supply chains; and for other government agencies that must help counter influence activities such as misinformation and disinformation that could disrupt a plan.

“If you go back to any major war, these are

all things that are in the footnotes of history that no one wants to talk about in hindsight,” said Farren. “But if you have a plan, you can be more efficient.”

Some groups were able to achieve the objective, but the bigger success was what he called “ah ha” moments: “I didn’t realize we didn’t make that in Canada, or I didn’t realize that we didn’t have enough of X, or I didn’t realize that we couldn’t do all of these things at the same time, or I didn’t realize that this would be a good use for the supplementary reserve. ... I think everyone left knowing more about the facets of mobilization.”

REFINING A DIVISION

Each game tends to breed another game, Farren observed. In line with the Army’s new divisional structure, the next exercise, slated for February 2026, will dig into the divisional layer. More an institutional tabletop exercise than a true war game, the intent is to explore how the Army can transition from the current structure to a divisional one, “with as little pain as possible, whilst achieving the outputs we need to achieve,” he said.

That means understanding where the Army might be carrying some risk because authorities remain unclear. With such a major structural change, the Army recognizes that certain actions might require approvals that are not evident until they are played out in a game, he suggested. “You’ve got all this furious scribbling going on to understand who needs to be responsible to

whom for what, by when.”

While the Army has accepted a new structure, the ongoing wargaming is intended to continue to define and then refine what is required within those divisions, explained Colonel Cédric Aspirault, director of the Army Modernization Team.

“A war game is [more than] just a blue-red thing — it’s where you see time and space. I can have my own idea that the Army needs 15 tank regiments, however, how do I move it? How much time do I need? The war game will force you to do that. It forces you to go outside of your bias, but also to limit great ideas that do not work in reality. I’m not saying the war game is reality, but the restrictions that we have will create a reality which will become our reality, and we’ll be able to test and look at solutions to different problems from different angles.”

Aspirault, who stood up the multinational brigade in Latvia and saw firsthand how the participating nations have structured and prioritized capabilities in their armies, suggested the process is forcing the Canadian Army to better understand scale as it addresses issues with its divisional structure.

“[We can] see how much space a division takes on the ground and ... what are the limitations. ... The mobilization war game was a great example of where space became a limitation because training areas have limitations. ... A well-structured war game will force you to consider that and will improve the output of the game itself.” ■



A tabletop exercise to plan the movement of key Army assets. Photo: MWO Colin Aitken



Col David Brassard, Commander 5 CMBG

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Multinational Brigade Latvia Commander Col Kristopher Reeves conducts command and control during Ex Oak Resolve in August 2025. Photo: Sgt Aydyn Neifer

NEW DEFINITION FOR LAND C5ISRT

By Canadian Army Today Staff

Though cyber has been a recognized military domain, on par with air, land, sea and space, for almost a decade, it has only recently cemented its place among the C's of command, control, communications, and computers, that have long comprised the convoluted acronym C4ISR (the ISR being intelligence, surveillance and reconnaissance).

In an address to the defence industry at the CADSI Army Outlook in April, Lieutenant-General Michael Wright underscored the importance of cyber within a group of priority projects that will form the digital backbone of a modernized force, stating that the internal shortform would now recognize both cyber and the significance of targeting.

"We've added the additional C, recognizing that cyber, on both the offensive and the defensive side, is a key to the success of Land C5ISRT," explained Lieutenant-Colonel Chris Stobbs, Director Land Requirements (DLR) section head in charge of the six Land C5ISRT projects, often referred to as SSE 4 for their position among recommendations in the government's 2017 defence policy.

The six projects include Land Intelligence, Surveillance and Reconnaissance Modernization (Land ISR Mod), Tactical Communications Modernization (Tac Comms Mod), Tactical Command & Control Information Systems Modernization (TacC2IS Mod), Joint Deployable Headquarters and Signals Regiment Modernization (JDHQSRM), Combined Joint Intelligence Modernization (CJIM), and Canadian Forces Land Electronic Warfare Modernization (CFLEWM).

While cyber is now included in the acronym that underpins all six, it has not introduced new

elements to the high-level requirements the Army is asking of industry. "Cyber is something that was not explicitly [stated] in the projects, but it is definitely part of the requirements of the program," said Stobbs, a Signals officer. "So, there's no change to the program at large."

Despite the setback of the COVID-19 pandemic and the challenge of meeting an urgent operational requirement (UOR) for a brigade command-and-control network in Latvia, all six Land C5ISRT projects are now in or nearing the definition phase of defence procurement.

Earlier this year, Tac Comms Mod, TacC2IS Mod, and CFLEW Mod entered definition, joining Land ISR Mod, which did so in July 2024. The remaining two, CJIM and JDHQSRM, are expected to transition from the options analysis phase by mid 2026. Both project schedules have slipped by about six months but won't significantly affect delivery of the overall portfolio, Stobbs suggested.

"Definition is a huge milestone," he said. "The [projects are] receiving resources and funding, and we're able to really refine the requirements ... and confirm what exactly is going to be delivered. It showcases that these projects are important and they're getting the resources needed to move forward."

He noted that while establishing the brigade network became the immediate priority in recent years, it was managed by a separate project team that did not draw significant resources from the core six. And although the UOR was specific to brigade operations in Latvia, it generated feedback that could help "de-risk" the Land C5ISRT projects.

"We won't necessarily get the exact same capabilities that have been implemented there,"

said Stobbs. "[But] we're looking at the lessons learned with respect to procurement, with respect to pushing some of this equipment into theater and seeing how it works, to de-risk some of the work that we'll have to do for Tac Comms and TacC2IS."

The brigade network is expected to achieve initial operational capability this fall, and full operational capability (FOC) in 2027.

It is too early in the process to share specific lessons, said Stobbs, but he was among a team from DLR, Director Land Command System Program Management (DLCSPM), and the Army G6 office to visit Latvia to assess the initial brigade capability, with the intent of using "that information to help feed into the subsequent projects, specifically Tac Comms and TacC2IS."

That in turn could influence the Land C5ISRT schedule, he noted. As a priority project of the Army commander and a critical component to many of the divisional elements the Army is seeking to acquire, there is urgency to move faster if possible. Wargaming exercises to develop the Army's action plan highlighted "that the Land C5ISRT suite of projects is a key enabler, so at each of the PMBs [Program Management Board], where we were briefing the projects, the biggest question was, 'You provided us timelines; can you move quicker?'"

Stobbs noted that fast-tracking the program would be contingent on the procurement process, but also on industry capacity to deliver systems, software and equipment on an accelerated timeline.

As part of the development and sustainment of C5ISRT, DLCSPM has seconded personnel to a battle lab created by General Dynamics Mission

Systems in Ottawa, to unearth and trial private sector technology.

"It allows us to test out some of the equipment that could potentially be included as part of the overall program," said Stobbs. "The lab is a great venue to look at different [industry] equipment and see if it makes sense prior to being delivered."

The venue could also provide the means to ensure continuous capability sustainment (CCS), a new approach to in-service support for which the Land C5ISRT program could be an early adopter.

"With the constant evolution of technology, it simply doesn't make sense to use that old capital project model where it takes 10 to 20 years to inject new equipment," he said. "The reality is, by the time that equipment is implemented with decades-old requirements, it is obsolete."

The details of the CSS are still being fine tuned, he added, but it is "the key to upgrading technology in the future. It still needs to go through the hoops and hurdles confirming that it makes sense and it has the [high-level] buy-in."

Already across the six Land C5ISRT projects, the teams are developing a three-year rolling cycle

that would see them begin technology upgrades of certain hardware such as radios, systems and software.

The initial requirements for each project were first circulated in 2017, following the release of the defence policy in July, and all are expected to reach FOC by 2037, a 20-year span.

"What we are doing to mitigate [technology obsolescence] within this program is using a cyclical approach to inject new capability," Stobbs explained. "The initial implementation for our two main projects, Tac Comms and TacC2IS, is between 2028 and 2030. So, between now and 2028, we're defining these projects; the implementation for that initial capability inject will be 2028 to 2031. Then, while we are implementing that initial capability in 2028 to 2031, we will define what will be implemented in 2031 to 2034. That way, we're always looking at the latest technology for that next implementation."

The General Dynamics battle lab will be a central feature of that technology identification and evaluation, he confirmed. "For that initial

capability inject for TacC2IS, we're looking at the battle management system, and on the Tac Comms side, we're focused on our vehicle communications."

Following the Army's initial modernization wargaming exercises [see page 20] that made clear the necessity of a digital backbone, DLR began looking beyond the current Land C5ISRT portfolio to what might be needed on the horizon, including trying to understand the implications of artificial intelligence, quantum computing, and other emerging technology on the current five Cs, as well as a possible sixth — combat systems.

"I've already dedicated a project director with the task of looking at post-SSE 42," said Stobbs. "That's where we're also engaging our allies and looking at some of their lessons learned as we look to implement these technologies."

With much of the Land C5ISRT program now in definition, the project teams will be holding industry days to solicit input on the final capabilities and procurement approach, and perhaps some of the thinking about future upgrades. ■



A Tactical Armoured Patrol Vehicle during a battlegroup recce in Latvia in August 2025. Photo: Cpl Jessey Gagné

Land C5ISR consists of six projects:

- 1 • Tactical Communications Modernization (Tac Comms Mod) will deliver the operational and tactical bandwidth and acquire the radios and other communication tools for headquarters, vehicles and other platforms.
- 2 • Tactical Command & Control Information Systems Modernization (TacC2IS Mod) will provide the hardware and software that comprise the systems and networks in brigade and battle group headquarters, and the software in radios and other systems in vehicles.
- 3 • Intelligence, Surveillance and Reconnaissance Modernization (ISR Mod) will acquire or upgrade a range of sensors, many introduced under all the interconnected Land Force Intelligence, Surveillance, Target Acquisition, Reconnaissance (ISTAR) projects, and ensure they connect into the larger Land Command Support System (LCSS) network.
- 4 • Joint Deployable Headquarters and Signals Regiment Modernization (JDHQSRM) will upgrade the communications systems, including most of the secret level comms, that the Signals regiment employs when setting up a joint task force headquarters or when elements of 1st Canadian Division, such as the Disaster Assistance Response Team, deploy.
- 5 • Combined Joint Intelligence Modernization (CJIM) is focused on delivering facilities to enable access to top-secret networks for deployed forces. The project will acquire physical shelter systems and will include a facility to train the army intelligence teams of the future.
- 6 • Canadian Forces Land Electronic Warfare Modernization (CFLEWM) will modernize the Army's ability to counter improvised explosive devices and improve its electronic warfare systems. Previously distinct capabilities, the two share a common interest in electronic countermeasures to sense and jam or exploit threats from electronic signals.



A JTAC conducts close air support drills during Ex Forge in Latvia in July 2025. Photo: Sgt Aydyn Neifer

Acquisition For Modernization

With the federal government committed to spending two percent of GDP on defence this fiscal year — an extra \$9.3 billion — and pledging to increase that to as much as five percent by 2035, the Canadian Army is poised to reconstitute and introduce capability critical to an ambitious modernization agenda intended to position the force for major combat operations.

In *Inflection Point 2025*, the Army's recently released action plan for modernization, Lieutenant-General Michael Wright designated four projects — Long-Range Precision Strike, Indirect Fires Modernization, Ground-Based Air Defence and Domestic Arctic Mobility Enhancement — plus the Land C5ISRT program as immediate priorities. Those, however, are just the tip of a much larger procurement iceberg.

As the government establishes a new Defence Investment Agency to streamline procurement and prepares to deliver a defence industrial strategy, Colonel Chris Sines, Director of Land Requirements, spoke about how the Army is positioning projects to meet that modernization mandate and capitalize on new funding and processes.

What does Inflection Point mean for your portfolio of projects?

We're continuing to push hard on [General Wright's] 4+1 priorities, as well as all soldier system-related equipment — operational clothing, helmets, load carriage systems — anything that's going to help demonstrate that we're modernizing, and especially that we're equipping individual soldiers. People have been complaining about long underwear and rain suits for ever. They still might in the future, but when they get new stuff, it's a sign the Army is listening.

[Also] really important are Army trucks — just getting logistics vehicles into service and in quantity. In our submission [to the Defence Investment Agency (DIA)] you'll see a lot of vehicles. That's important because it brings us up to our previous full scope, which then supports the modernization narrative of growth. Years of funding pressures have us under-equipped with aging fleets of vehicles. We have been essentially starved, which makes it difficult to support future growth. We are hoping to at least top up to minimum acceptable levels so we can support deployed and domestic operations, while being ready to support growth to further optimize operational effectiveness.

Given the priority Gen. Wright has placed on those projects, does the funding commitment put you in a position to increase the pace? Or is the process still the process?

There's an appetite to change the process, and that initiative has become very serious. It's so serious, in fact, that I had to send my deputy, Lieutenant-Colonel Ben Lefebvre, over to the new DIA. I'm hoping that's going to have a good return, because losing a key person for the rest of this year in an organization that's already short of people was not an easy sell. But the Army thinks we are making the right call by sending someone this knowledgeable. He's there to make sure that when DIA is looking at areas for investment, we have projects we can offer and accelerate. The Canadian Modular Assault Rifle (CMAR), for example, is designed and the Munition Supply Program can be leveraged to do this. It's all Canadian content. It fits the government narrative. There shouldn't be an easier button to press.

Others get a little more complicated. The Domestic Arctic Mobility Enhancement (DAME) is one of the Commander's top four, and we really want to accelerate it. The number of companies that make those vehicles is limited, so it will depend on the consortium they build, and the value they offer to Canada. From our perspective, though, it's the operational capability — where can it operate, how reliant it is, how many of our allies have it. Interoperability is not just being able to work alongside them, we also look at the value of interchangeability — the shared supply chain for parts and the ability to pool resources, including maintenance technicians.

In the meantime, the process is still the process. This is where the narrative gets difficult. Because there's certainly an appetite from the Army to accelerate, and we owe it to our soldiers to provide them that equipment. We owe it to the people of Canada to make sure that we're able to defend Canadian values at home and abroad. And we owe the current government; they've made commitments and we're trying hard to support



Tank replacement is at the front of a list of projects in pre-definition. Photo: CAF Imagery Technician



Crossing of anti armour ditches as part of Ex Strike in Latvia in July 2025. Photo: Sgt Aydyn Neifer

those. Unfortunately, we don't hold all the levers. There are other government departments and, collectively, we need to come together and just be better, more efficient.

Funding is one part of the equation; people are the other. Do you have the personnel to accelerate if you are asked?

Staffing levels continue to be a challenge. We're putting together plans to expand, but there are a limited number of people in uniform, and limited numbers qualified to do this kind of work. So, we are looking to leverage contracted services and other approaches. Despite being staff deficient, we're looking at ways of fighting through the process to move things faster. Some of that is based on narrative. The Army has been pretty good about increasing dialog with industry partners, from the Commander with his strategic messaging down to the project directors. Where we need to refocus our efforts, in my opinion, is internally. The other departments involved in the procurement process need to understand the new pressure and demand, and I'm not sure if that is understood as one would assume.

Presumably, that sense of urgency changes if all the departments are operating under the single umbrella of the DIA?

I would assume so. I would assume it would be easier to prioritize. For example, to address a number of urgent operational requirements (UOR), we had to reassign teams. We reassigned from other projects that were also high priority. There were projects, some outside the Army, that are lower priority. Why were teams not assembled from those? We're not always thinking of the larger game plan, and I think that's starting to lead to some frustration. It's not the fault of anyone in particular. We're all one team, and we need to be a better team. It just appears that there's a lack of flexibility.

To meet the needs of the restructuring plan, are there projects in addition to soldier systems and CMAR that become critical to support major combat operations — bridge and gap crossing, for example — that must happen much quicker?

Except for DAME, the 4+1 are all enabler types of capability. Other things are less intuitive, like logistics vehicles. With the Logistics Vehicle Modernization (LVM) project, we just need additional quantities of both the heavy and light variants. They're coming off the manufacturing line now, and we probably need to double those quantities. With the Light Utility Vehicle (LUV), the next project coming through, we need that accelerated. It's going to be the workhorse of the Army, replacing the G-Wagon and the LSVW (Light Support Vehicle Wheeled). Again, in big quantities. And then we need to have options to grow, depending on the shape of the Army's new domestic division and expeditionary type manoeuvre division.

With a division dedicated to domestic response, are there capabilities you now need for core missions, such as supporting provincial responses to wildfires?

That's where we'll look at those vehicle fleets that are super flexible. The LUV would be a top priority. We're also looking at the Light Tactical Vehicle. It's more for the light infantry battalions, and we have acquired some under the UOR for Latvia as part of the Light Forces Enhancement project, but we know that we will need more [for domestic operations]. We've delivered about 120 of the 330 to Latvia, and now we need to look at options for growing that 330.

You have a lengthy list of over 50 minor capital projects. Can they be accelerated with an increase in funding?

Yes and no. With the minor caps, we have less process to fight through, and the turnaround time is faster — we can execute a minor project within one to three years. The challenge is staffing to write the statements of work and the contracts, and move it through. On the Army side, we can overtask soldiers to do that, but, again, it's more of a challenge for the other departments. To be fair, they are working hard; I think they just need additional staff to support it.

You also have a large list of projects that are unfunded and in pre-definition, but likely important to modernization. What's at the forefront of that list?

Things like heavy direct fire, or tank replacement, and the Army loitering munitions and the uncrewed aircraft systems (UAS) recapitalization are on there. Counter UAS is also there. The UOR is funded, but not the institutionalization of the capability. That one could potentially move to the new Joint CUAS Office. They might also take elements of UAS. We want to make sure this new office optimizes things across the services, but we also need to make sure that we have flexibility — what the Army uses a UAS for and what the Air Force uses a UAS for are completely different.

Are there projects on that list that could be pulled forward because of the modernization plan?

The heavy direct fire, or medium cavalry, could probably be one. We're waiting to get more fidelity. The cavalry concept has certain roles and responsibilities on the modern battlefield, and the equipment that will be used to support that will need to be examined in detail. Does it need to be tracked or wheeled? It's going to depend on the magnitude of the tasks, the versatility required for those tasks, and any constraints. Do we need to put this on the back of a Herc to fly it up into the North?

Is this the return of the Close Combat Vehicle [that was cancelled in 2013]?

It has come full circle. There was a period where it was decided that perhaps we did not need heavy forces, and therefore we didn't need more



Artillery members in Latvia with the new RBS 70 NG. Photo: CAF Imagery Technician



Members of the Multinational Artillery Battalion Group fire M777 in April 2025. Photo: NATO MNB Latvia Imagery Technician

robust reconnaissance that could be provided by a close combat or medium cavalry type of capability. Then Ukraine happened. The situation has changed, and instead of being a highly mobile, largely deterrence force, now we're considering at least an element of capability that needs to be able to dig in, fight and win in a hugely tactical battle. Heavy forces on tracks are the kinds of equipment and capabilities that do those tasks. We've assigned one member from DLR to work at CALWC (Canadian Army Land Warfare Centre), do that concept design quickly, so that we can decide what will be in that project. That's happening over the next year.

When we talk about options for acceleration, we are also looking to leverage the NATO supply program, where it makes sense. We're very cognizant that we're trying to provide the best value to Canada. At the same time, we're balancing that with the absolute need to make sure that we're providing equipment to the soldiers, sailors, airmen in harm's way. We're trying to encourage Canadian industry to get into that program so that other nations can buy from them. This is one way we're looking to potentially accelerate some of our larger projects, like indirect fires and tank replacement. There could be options for government-to-government business. That will feed into interchangeability. There's a huge cost and time savings if other nation's have already done all the technical design plans, the training plans, and everything else. It's provided as a package and, because it's with NATO allies, the documentation is usually available in at least one of our official languages.

You touched on interchangeability earlier: What does it mean when defining requirements?

It's a couple of things. In the past, we've taken off-the-shelf solutions and then Canadianized them to a point where they no longer look anything like off-the-shelf. We're moving away from that by necessity. Interchangeability means the ability to access supply chains from multiple partners. It's trying to simplify how we get things repaired. If my vehicle breaks down and I'm using the same variant as an ally, and they have a spare part, then they can lend it to me, and even help me install it.

Has that been challenged by the current political dynamic with the United States?

Interchangeability focuses on NATO and the 5 Eyes, and the U.S. and U.K. are part of both. Those are generally the two we try to partner with the most, which has traditionally made sense. Right now, we're monitoring how that's going to work. It's still part of the equation. Although there's a political narrative to the difficulties with our partner to the south, from an army-to-army perspective, we still want to get on with business. But we have to be aware and flexible to the fact the political arena will influence some of these projects.

Your predecessor stood up a technical officer liaison cell in Latvia. How are you using that to inform modernization and/or interoperability/interchangeability requirements?

We leverage it on all fronts. It's a means of communicating everything that's coming down the pipe to Latvia, which was extremely helpful as we were delivering the UOR projects. But it's also a way for getting feedback. For example, they just completed initial cadre training for the portable anti-tank missiles during a live-fire exercise, so the liaison cell is confirming the data and providing feedback to the team, as well as to the equipment manufacturer. It's also tied into experimentation. In conjunction with Task Force Latvia, we are creating a battle lab, and that's a venue where we're looking to allow some exploration within boundaries so that we can capture lessons that might affect doctrine or equipment.

Given your recent tenure with the warfare centre and plans to expand experimentation services, how are you now connecting CALWC efforts with the battle lab? Are you creating venues for experimentation or buy-and-try of new equipment for testing in Latvia or in pre-deployment training?

Exactly. We're trying to have greater flexibility with buy-and-tries or limited procurements. We're not going to put something that's completely developmental over in Latvia. That's where we'll leverage a Bold Quest or a Project Convergence [in the U.S.]. CALWC will make sure those earlier design type pieces of equipment are being tested in a safer environment. Once we know the equipment works as advertised, then there will be more flexibility to bring it into to Latvia and allow the troops to explore novel methods of use and the adaptability of the equipment in a dynamic environment.

Does Project Convergence become a stepping stone, almost, between the battle lab in Latvia and programs like IDEaS (Innovation for Defence Excellence and Security) and Innovation Solutions Canada (ISC)? If you succeed in an IDEaS sandbox or challenge, for example, do you then "graduate" to Project Convergence?

That's the way it should be orchestrated. Think about IDEaS as a quick demonstrator event. Then we'll bring it into a Project Convergence where failure of equipment, failure of the concept is completely permissible — it's a learning environment. The next graduation would be a Bold Quest to start exploring tactics, techniques, and procedures. And once we know the equipment works, now let's take it to Latvia and see how soldiers really use it. We are establishing an experimentation to validation continuum to allow innovation and capability exploration in a disciplined and coordinated manner. To this aim, we are launching the Minerva Initiative that will see us partnering with research agencies (Borealis, IDEaS, ISC and NATO DIANA), along with small and medium Canadian businesses, to explore the use of robotic and autonomous systems to meet operational needs. The aim is to help build a flexible and responsive Canadian defence industry, particularly in this realm of technology. ■





DRONE ARMY

NEW INITIATIVE TO ACCELERATE SMALL UNCREWED SYSTEMS

BY CHRIS THATCHER

With *Inflection Point 2025*, the Army has provided direction for the first pieces of what it calls “the most comprehensive equipment modernization effort in the past 20 years.”

In addition to a digital transformation across the land force, the roadmap includes new ground-based air defence, indirect fire, and long-range precision strike capabilities, as well as better mobility in the Arctic.

The aim is a more “lethal, hardened, interoperable and digital force,” in part predicated on investment in uncrewed and autonomous systems — aerial, ground, and littoral.

The modernization plan denotes uncrewed systems, or UxS, as a critical area for experimentation and acquisition. The objective is to develop and integrate a range of multi-domain capabilities for everything from target acquisition and direct fire to surveillance, electronic warfare, and communications.

Furthermore, to enhanced beyond-line-of-sight lethality, the Army envisions “wider distribution of loitering munition swarms, and longer range anti-tank guided missiles paired with UxS across the fighting echelons [to] provide enhanced precision firepower at lower levels, in turn

lowering the probability of direct force-on-force engagements, limiting our exposure to adversarial strike capabilities, lowering the risk calculus of unmasking indirect fire capability, and increasing battlefield manoeuvrability.”

In September, Army commander Lieutenant-General Michael Wright officially launched the Minerva Initiative, a capability development program focused on integrating drones and autonomous systems into land force operations.

It’s not a procurement project in the traditional sense, explained Lieutenant-Colonel Cory Durant, the initiative’s chief planner with the Directorate of Land Requirements (DLR), but rather a comprehensive approach to “rapidly move the Army towards the adoption of small-form uncrewed systems.”

Consequently, it will be led by the Canadian Army Land Warfare Centre rather than DLR, though staff have been seconded to support the initiative, which began preliminary work in July.

“It’s going to be both an accelerator and a think tank,” said Colonel Chris Sines, director of DLR. “The idea is to ... bridge that innovation valley of death. We need to do that with uncrewed systems, because they are the new ammo, the new rifle.

They are multi-purpose, and we need to build [capability] more rapidly. That’s one of the biggest lessons that Ukraine has shown us.”

Though the viability of larger cargo and refuelling platforms are making headlines in various trials, Minerva is focused more on systems tailored to the unit level and below — to an infantry platoon trying to see beyond a building or an engineer unit assessing the gradient of a riverbank, added Durant.

In a transparent battlefield that is under persistent surveillance from the air, ground and space, “moving around without being seen is increasingly challenged,” he observed. “If we can augment our troops at the tactical level with uncrewed systems, we can increase their combat power — their ability to sense further. We can eventually add strike capacity to those systems. We can expand our command and control and communications network. And if we can increase our combat power, we can diminish the threat, the risk to our soldiers.

“So, the Army is looking to use the initiative to drive force development of uncrewed systems in line with our evolving concepts of operations.”



BROAD UXS FOCUS

None of that will be possible without the participation of Canadian industry. Minerva takes its policy coverage from the government's 2024 defence policy, "which directs that we partner more collaboratively with industry [and] support the defence industrial base," Durant noted.

The initiative will host a "kick-off" meeting with industry in late 2025 to begin the process of better understanding the roles and requirements for UxS, in anticipation of funding becoming available in the new fiscal year.

"The discussions we'll have are broad on all forms of small UxS. As well as the systems themselves, we'll focus on what we've termed enabling and sustainment technology, like how do you track them when they're all different? For aircraft, we have IFF (Identification Friend/Foe) modes 1 through 5, and they all correspond with military or civilian aircraft and how ground control tracks them. When we're talking about UxS in the air and on the ground, how do you do that?

"Also, do you need to buy every single component? Can you 3D print them? Can you build elements of it? There are some practical policies that need to be thought through. When

we buy what we call a General Purpose Uncrewed Aircraft System, it's sold to us as commercial product and there are implications if we make our own design changes," Durant added.

"We're doing some incremental things in the short term, but we'll see more expansive efforts in the new fiscal year."

The initial focus will be surveillance and reconnaissance capabilities, but Minerva will also explore the wider adoption of loitering munitions and first-person view (FPV) drones. The Army will introduce the AeroVironment Switchblade 300 and 600 loitering munitions to the brigade in Latvia under an urgent operational requirement (UOR) project. They will be distributed among mini-uncrewed aerial system units, which currently operate the CU173 Raven, a hand-launched drone that uses a similar ground control station as the Switchblade. The adoption of FPVs is still being evaluated.

Whether it's a one-way attack munition or an FPV strike drone, the capability is essentially the same, said Durant. "A loitering munition is far less hands on than an FPV drone, which is literally an armed racing drone, so a high skillset piece of equipment that provides that same effect.

"We're looking at both within the Minerva Initiative. ... [But] how do we deploy that technology? Is it massed with specialists, like another form of fire support? Is it distributed widely to provide very organic, rapid, flexible firepower for a small group of soldiers? That [distinction] of specialist versus generalist is something we need to think about. The technology is there and it's advancing."

While the initiative will explore offensive capability, it won't tackle the counter-UAS (CUAS) role. The government in February 2024 awarded three contracts for counter-drone capability under a UOR for Latvia — TRD Systems of Singapore for ORION-H9 dismounted directional systems; U.S.-based CACI for BEAM 3.0 omni-directional systems; and Leonardo UK for Falcon Shield fixed-site systems. DLR is now in the identification phase of a larger CUAS project in conjunction with the Joint CUAS Office.

"We've tried to focus on the uncrewed systems themselves with Minerva," Durant explained.

"For CUAS, the more kinetic the defensive systems get, which is where the trend lines seem to be going, the more it looks like a specialist piece of equipment — you move from a tool to



Counter-UAS training during Ex Oak Resolve in September 2025. Photo: Cpl Michael Vandenbroek



Photo: MCpl Daniel Chiasson

a role. We're working on the broader plan for more advanced kinetic systems for [countering drones]."

However, the Minerva Initiative will look at how Innovation for Defence Excellence and Security (IDEaS) has conducted CUAS evaluations through sandboxes, as a possible format for UxS, especially uncrewed ground vehicles.

The roles for small UGVs are rapidly expanding, Durant noted, but command and control remains a challenge when they move beyond line of sight. "There's lots of technologies out there for the mining industry, for instance; they use LIDAR (Light Detection and Ranging) to paint a picture of their surroundings and navigate. ... In the open, that's more problematic."

GENERAL PURPOSE PUSH

Replacement of the existing fleet of small drones falls outside the scope of Minerva. The Army currently operates the mini hand-launched

Raven and the small rail-launched Boeing Insitu RQ-21 Blackjack, known as the CU172.

A replacement for the Raven with another military-grade system will be part of the Land ISR Modernization project, which is now in the definition phase and scheduled to begin implementation in 2028. The Army will be seeking a platform with at least quadruple the range and flying time of the Raven, which has a range of about 10 kilometres and one hour of flight time.

Planning for the replacement of the Blackjack, employed by the 4th Artillery Regiment (General Support), is only just underway, but it "sees us being more deliberate," said Durant. "Range isn't acutely the issue, because the range ideally corresponds to some degree with the role and the weapons, and the longest-range weapons we're going to have in that 2035-40 timeframe are out to 150 kilometres, give or take."

For UAS, the Army is considering a similar planning approach to artillery, where the weapon



A CAF member on Op Unifier demonstrates drone capabilities during the Advanced Sapper in September 2025. Photo: CAF Imagery Technician

— mortar or guns — supports the manoeuvre of battalion or brigade. “We’re looking to create that echeloning of UAS, to correspond with the aerial sense capability, and, in the future, the strike capability at the same echelons.”

At present, though, the “big push” is for General Purpose UAS, the enduring program that will acquire about 1,000 quadcopters in the coming months to be distributed to various units for hands-on learning and developing operating concepts. An initial tranche of Teal 2 drones was procured as a UOR in 2022 — some were also acquired for security during the G7 Summit in June — and the Army is now looking for more platforms from multiple suppliers.

“Army wide, we’re starting to bring those online at scale throughout our units,” explained Durant. “The simpler the system, the easier it is to incorporate at the lowest level. And you can give very small groups of soldiers, down to the platoon and section level, a tool to get eyes forward.

Ultimately, this means that a lieutenant or a sergeant has the option of sending a machine, rather than a soldier, to conduct necessary but dangerous recce tasks. These systems will not replace our soldiers, they will increase their situational awareness, their ability to sense and strike an adversary, and give them an alternative to poking their head up to ‘take a look’.”

For now, the emphasis is on dual use technology—companies that have tailored commercial products for various civilian sectors that can also meet basic military requirements. Quadcopters will lead the way, but fixed-wing solutions could be under consideration as the program expands.

“This is where we’ve started, but the intent [through the Minerva Initiative] is to expand into other forms of robotics, including ground systems and littoral systems,” said Durant. ■



Photo: OR Wessel Zijderduin

The value of mission command on **Op Unifier**

By Allan Joyner

Operation Unifier represents the Canadian Armed Forces' (CAF) deliberate effort to rewire the fundamental architecture of Ukrainian military decision-making established during Soviet times from the ground up. At the heart of this transformation is the concept of “mission command,” a NATO standard that holds commanders at even junior levels accountable for results while granting them wide latitude to determine methods.

One critical focus has been on developing a professional non-commissioned officer (NCO) corps, something largely non-existent in the Soviet system.

In Western armies like Canada's, having a young lieutenant mentored by a lower-ranking but vastly more experienced sergeant creates flexibility and adaptability that Soviet-style top-down hierarchies simply cannot match. Canadian training has focused on teaching Ukrainian junior officers battlefield responsibilities, planning processes, manoeuvre coordination, and intelligence operations, essentially equipping them to think rather than merely execute.

Canadian advisors have worked with Ukrainian forces to build foundational NCO development documents — general specifications, qualification standards, and training plans — that form the bedrock of a NATO-standard professional NCO corps.

The tactical implications of this are at the core of how Canadians train Ukrainians to operate. Western doctrine dictates that it should be routine for higher echelons to trust a section sergeant to independently figure out how to accomplish a task. This is worlds apart from the Soviet model, where initiative was discouraged and orders flowed exclusively downward.

At training sites in Poland and elsewhere, Canadian instructors have taught Ukrainian recruits practical skills like disarming anti-tank mines and re-pinning enemy grenades under simulated drone fire. But more importantly, they have taught them to make split-second decisions without waiting for permission from distant commanders.

Repeatedly, Russian generals have been killed on the front lines because

their system has no decentralized decision-making. When communications break down, these senior officers must move dangerously forward to sort things out themselves. The Ukrainian forces being trained by Canada fight with an entirely different operational philosophy of trusting your NCOs, empowering your small teams, and pushing authority downward.

Perhaps the most significant aspect of Op Unifier is that Canadians aren't just training Ukrainian soldiers, they're training Ukrainian trainers, teaching them how the CAF develops courses and builds professional military education systems. This “train-the-trainer” approach ensures transformation becomes self-sustaining rather than dependent on continued foreign assistance.

Since 2015, over 46,000 Ukrainian security force members have received this training, creating a critical mass of personnel who understand that effective modern warfare depends not on rigid adherence to centralized plans, but on empowered individuals making intelligent decisions at the point of contact. The result is proving to be an army that can operate more like a neural network than a traditional hierarchy — where damage to one node doesn't paralyze the entire system, and where tactical opportunities can be exploited by whoever sees them first, rather than waiting for approval to cascade down from above.

An October video feature in the *Kiev Post* underscores the success of this Canadian approach. The Ukrainian infantry hasn't merely adopted NATO-style decentralized command; they've taken those principles and pushed them to extremes under the brutal pressure of a drone-dominated battlefield that would have been unimaginable even five years ago.

In the video showcasing small unit training in the 41st Separate Mechanized Brigade (41 SMB), the transformation is described by soldiers like callsign ‘Timokha’ and callsign ‘Chasik’, who reveal how Canadian training in mission command and NCO empowerment has become the foundation for something entirely new, an army with units that benefits from



A CAF member provides counter explosive threat training. Photo: Lt(N) Jennifer Gray



Security Forces of Ukraine members conduct obstacle removal training. Photo: Lt(N) Jennifer Gray

being able to think and act as the tactical situation demands.

The decentralization that Op Unifier taught has evolved into what Ukrainian soldiers now call the “lone soldier in the field” doctrine. As callsign ‘Shambala’, an instructor at the training site, explained, the emphasis has shifted entirely away from the old Soviet company-sized formations toward small, mobile groups — sometimes just a single, highly trained soldier — who can read enemy intent, strike, withdraw, and strike again.

This isn’t just a tactical choice; it’s a survival necessity in an environment where Ukrainian soldiers report that ongoing drone presence makes it hard to move to and from trenches without being detected. The infantry that once moved in predictable waves now operates in cells of four to six specialists that leave minimal signatures to the all-seeing surveillance overhead.

Significantly, the unit from 41 SMB featured in the video no longer consists solely of riflemen — they have naturally expanded to include programmers for electronic warfare, radio technicians to handle communications in a jammed environment, combat medics, and even tractor operators for fortification work. This broadening of capabilities within small teams reflects NATO decentralization taken to its logical extreme.

By early 2025, Ukrainian first-person view (FPV) drones were inflicting up to 80 percent of Russian casualties, fundamentally changing what “infantry” can accomplish. Russian forces have adapted to Ukraine’s drone effectiveness by shifting from heavy armoured columns to smaller assault units using motorcycles and dune buggies to evade drones. The training showcased in the video has an emphasis on shooting at various ranges in rapid succession, which directly responds to these fast-moving, dispersed threats that can dangerously approach positions before drones can respond.

The soldiers at the training ground in the article practice shooting drills in deliberately uncomfortable conditions like standing on shaky platforms, rapidly changing their positions, and firing at targets at varying distances, all the while watching the sky as much as the ground. When both sides recognize that large vehicles and formations are death sentences, the army with better-trained, more autonomous small teams wins.

What’s extraordinary is how Ukrainian soldiers have internalized the mission command philosophy to the point where they are now innovating faster than their NATO mentors could have imagined. In December 2024, for

example, Ukrainian forces conducted the world’s first fully unmanned assault operation near Lyptsi, involving dozens of uncrewed ground vehicles and FPV drones with no infantry — a tactical evolution that demonstrates how empowered soldiers who understand that they are trusted to experiment will push boundaries.

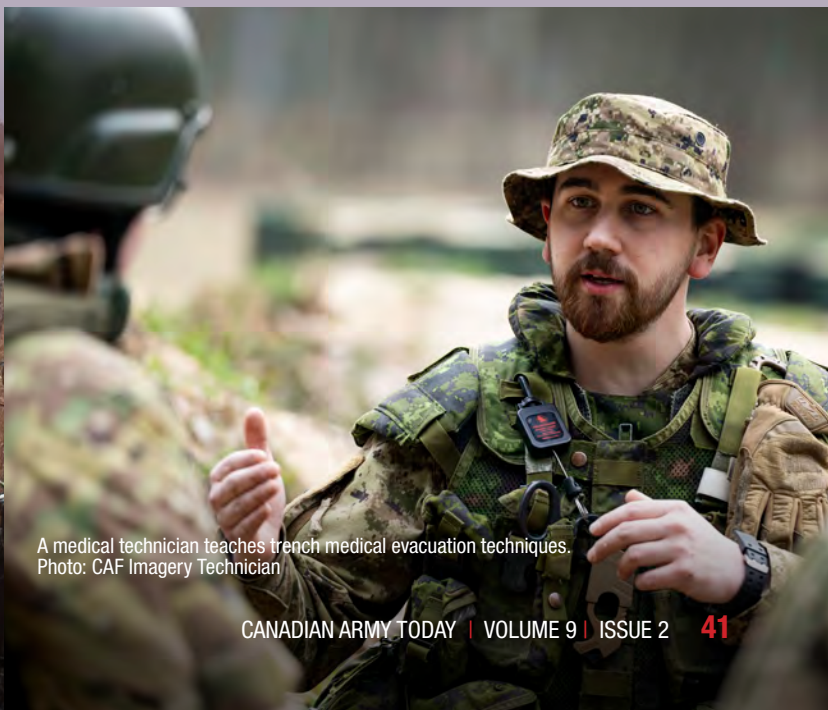
Ukraine was producing 200,000 FPV drones per month by early 2025, and critically, much of this innovation comes from the bottom up rather than top down. Lessons learned in the trenches are conveyed up the development chain. And a gamification system that Ukrainian Defence Minister Fedorov introduced, where drone teams earn points for confirmed kills that can be redeemed for better equipment, works precisely because Ukrainian infantry teams have the autonomy to operate as independent units accountable for results rather than following rigid scripts.

While it didn’t have to be taught to the Ukrainians, the essential psychological dimension that 41 SMB emphasizes is in their motto, “Faith is stronger than fear.” Nerves of steel, and trusting those beside you isn’t motivational fluff. It’s courage, and it is the essential glue that holds decentralized command together when a section sergeant must make life-or-death decisions without waiting for approval from distant commanders.

An experience of callsign Chasik in Russia’s Kursk Oblast, where his “sabotage and reconnaissance” group encountered an enemy reconnaissance team and extracted without losses, exemplifies this. Small teams taking the initiative and operating deep in hostile territory can only survive through a combination of technical mastery, tactical intelligence, and absolute trust in each other’s judgment.

The Canadian training gave Ukrainians the framework for decentralized operations, and the drone-saturated battlefield gave them the motivation to perfect it. As 10-year veteran, callsign Timokha says in the video, “you have to improvise a lot” on the modern battlefield.

Their willingness to improvise and adapt has created an infantry force that’s simultaneously more dispersed and more lethal than the developers of traditional doctrine ever contemplated. They’ve proven that empowered soldiers with tremendous courage and cool heads — and the authority to act independently — aren’t just surviving the chaos of 21st century warfare, they are defining its cutting edge. ■



A medical technician teaches trench medical evacuation techniques.
Photo: CAF Imagery Technician

ARMY ASSAULT RIFLE Ripe For Acceleration

By Ken Pole

As the Canadian Armed Forces (CAF) plans for a world the 2025 federal budget calls “more volatile and dangerous . . . than ever,” the military is in the throes of what the government terms “generational investment” in an array of new technologies. One part of its response is the procurement of some 65,000 new rifles, mostly for the Regular Force, with some destined for the Primary Reserves as well as the Royal Canadian Air Force and the Royal Canadian Navy.

The Army’s answer is the Canadian Modular Assault Rifle (CMAR), an evolution in Colt Canada’s combat-proven family of compact gas-operated select-fire carbines currently in service as the C7 and C8. Introduced in 1984 and now arguably well past its best-before date, the C7 is supplied to the Regular Force while the shorter C8 is better suited to close-quarters operations.

The CMAR is based on Colt’s Modular Rail Rifle (MRR), which replaces old-school accessory mounting rails with M-LOK slots designed by Magpul Industries. Headquartered in Texas, with production facilities in Wyoming, privately held Magpul released its patented design in 2017 for use by other manufacturers.

(Magpul takes its name from its first product, a Magazine Puller which makes reloading from pouches faster, a life-or-death factor in combat. It was developed after most NATO members standardized the 5.56 x 45-millimetre round for their rifles, enabling in-theatre ammunition and magazine sharing between allies.)

This approach remains a key element of the project, confirmed Captain Pedro Cruz Duarte, the Army’s current CMAR project director.

“We’ve been looking at what our allies are using — as well as our adversaries,” he said. “Our C7s and C8s are obsolete and we need to improve

optics, rifle precision, accuracy, etc. Many of our allies are buying off-the-shelf as well, so we’re picking their brains. We’re communicating with them and making sure that we’re aligning ourselves with a system that will be not only effective with our Canadian soldiers, but will also be interoperable with our NATO allies.”

In addition to affording shooters more versatility in the accessories they use on specific missions, the M-LOK is lighter than traditional rails — a significant benefit for increasingly burdened dismounts.

Unlike previous monolithic designs, the barrel is only as thick as is needed to permit the rifle’s gas block to trap the gas from a fired round and direct it through a tube to the bolt carrier, which uses the pressure to eject the spent casing and chamber the next round. Current rifles can cycle at a rate of 750 to 900 rounds per minute (rpm) in fully automatic mode, but are limited to an actual 15 rpm at a sustained rate of fire. In semi-auto mode, which depends on how rapidly a shooter can pull the trigger, it can increase up to 65 rpm.

The legacy rifles will be replaced on a one-for-one, CAF-wide basis. The current delivery schedule prioritizes deployed personnel, notably the 2,000 or so in Latvia under Operation Reassurance, which includes the Canadian-led multinational brigade, part of the largest reinforcement of NATO collective defence in a generation.

Cruz Duarte confirmed that “initial operational capability would be reached when all rifles, ancillary equipment, and ammunition is provided to at least one deployable unit,” but he was unable to discuss the broader delivery plan.



The Montrealer’s seven years and counting with the 1st Battalion, Royal 22nd Regiment — the storied Van Doos who are the largest regiment in the Army — included six months in Ukraine on Operation Unifier, the Canada-France initiative to train thousands of Ukrainian troops after Russia annexed Crimea in 2014.

When Cruz Duarte returned to Canada, he spent a year at Royal Military College in Kingston, Ont., on technical staff qualification, which saw him posted in 2024 to National Defence Headquarters where he began working with Major Carl Gendron, the long-time head of the Small Arms and Light Weapons Team.

“We’re still working in close partnership with Colt Canada, looking mostly at the precision of the barrels and testing their endurance,” Cruz Duarte said. “We’re also looking at the endurance and the noise reduction of the different suppressors we have in sight, as well as testing the trigger systems.”

Another key element under review, also in collaboration with Colt, is ammunition: whether the current 5.56x45mm round is “the right solution” for the future.

“As of now, it’s our option,” he noted. “However, we’re open to finding something else, so we’re also testing other ammunition to see if we can still get the required precision at the increased range of the rifles.”

The U.S. Army has been pushing a 6.8mm rimless bottlenecked cartridge, but Cruz Duarte said the CMAR team is not convinced because of the changes it would require on the legacy design's magazine, barrel and other critical elements.

"We're very comfortable right now with the 5.56," he replied. "When it comes down to the actual punch and the precision, the 5.56 is what we're going for."

The plan is that once a contract is signed with

Colt Canada, likely in 2027, it will be procured as an all-inclusive package. "We see it as not only a rifle, but as a system with all the optics, ammunition, magazines and training, etcetera," Cruz Duarte said.

One of a group of companies owned by Colt CZ Group SE in the Czech Republic, Colt Canada is the exclusive supplier to the CAF and is the government's Centre of Excellence for Small Arms. Once the contract is signed, it will have to approach other manufacturers for various pieces of equipment.

Cruz Duarte acknowledged that the rifle

replacement program has been in the works for some time — not uncommon in Canada's historically convoluted procurement process — but did note the government's announcement of a Defence Investment Agency (DIA) in early October. Its stated goals are "centralizing expertise, cutting red tape and streamlining decisions" to ensure "faster delivery of critical equipment."

"There seems to be more appetite to fast-forward some projects," he said. "CMAR is one that is in the crosshairs to be accelerated."

At this point, there are still ongoing discussions about the project and funding authorities, but we are 100 percent sure the rifles will be procured through a direct acquisition approach." ■



Cpl Joshua Bedard of Land Task Force Nunakput with a C7 rifle during live-fire training near Pond Inlet, Nunavut, in September 2025. Photo: Sgt Alana Morin



A Land Task Force member using the Android Team Awareness Kit (ATAK) device while on patrol in Kananaskis. Photo: Lt(N) Joshua Ehnisz

Integrate early, and at all levels: Lessons from the G7

By Chris Thatcher

When Canada plays host to an event like the G7 Summit, it triggers a rare approval process within the Canadian Armed Forces (CAF) — use of force on domestic soil.

As Joint Task Force Cadence was standing up in the fall of 2024 to lead the CAF contingent providing security to world leaders attending the June Summit in Kananaskis, Alta., one of its first priorities was establishing the rules of engagement (ROE).

“It’s been a long time since a lot of the troops had lethal ROE with loaded rounds,” observed Brigadier-General Wade Rutland, the commander of 3rd Canadian Division and Joint Task Force (West), and by extension the commander of JTF Cadence.

“In all the lessons from previous events, [they] said, get your ROE signed early,” he noted. “Everyone had to know and be confident in their ability to use force, to understand [the difference] between hostile intent and lethal intent. For months, we were able to practice use of force procedures. We held a big rules-of-engagement symposium, down to battalion level, and then did tons of practices before the actual operation in Kananaskis.

“Thankfully, we didn’t have to use them on the ground. But [the training] certainly gave a lot of

confidence to the soldiers.”

Lethal ROE as approved by Canadian Joint Operations Command (CJOC) are standard for missions such as Operation Reassurance in Latvia, where deterrence of a looming Russian threat is central. But for many members of 3rd Canadian Division, training in Canada with such rules was a new experience.

“When I looked around the room when we were doing this, the battalion commanders now are the last Afghan war veterans — they were platoon commanders in 2010-2011,” Rutland said. “We’re starting to get to a phase where [that experience] is gone.”

Operation Cadence became not only a first use of lethal ROEs for many in a division that will lead the multinational brigade in Latvia in 2027, but also a trial of technology gradually seeping across the Army, and a first “test” of structural changes that will see the Army reconfigure as three operational divisions focused on defence of Canada, manoeuvre, and support.

Unified Command

Though the land component of JTF Cadence was drawn primarily from across 3rd Division, particularly 1 Canadian Mechanized Brigade Group

(1 CMBG), it was “true full, joint CAF,” said Rutland.

The Land Task Force (LTF), led by 1 CMBG under Colonel Sean French, included 1,400 soldiers from the first and third battalions of the Princess Patricia’s Canadian Light Infantry and 1 Combat Engineer Regiment.

The Air Task Force included a headquarters as well as six CH-147F Chinook and six CH-146 Griffon helicopters, aircrews, maintainers, and logistic support. A Joint Task Force Support Component of about 125 soldiers, drawn from the 3rd Canadian Division Support Group, not normally a deployable unit, provided overarching logistics. The JTF also included about 300 reservists, operating as a Reserve company.

The task force headquarters was co-located with the Royal Canadian Mounted Police in Calgary, a partnership in which the CAF was notionally “subcontracted” to the RCMP but reported directly to CJOC.

Poring over the performance reports and other documents from the 2002 G8 Summit, also held in Kananaskis, the 2018 G7 Summit in La Malbaie, Que., and the 2010 Olympics in Vancouver, the overriding theme was early integration among the security partners, and at all levels, said Rutland.

His office was located beside RCMP Chief Superintendent Dave Hall, the event security



BGen Wade Rutland addressing members of the Air Task Force. Photo: MCpl Steeve Picard



A member of the Land Task Force using the Thales Sophie Ultima handheld Thermal Imager. Photo: Lt(N) Joshua Ehnsz

director and a former CAF member, near a joint operations cell that allowed for rapid communications across the task force.

“We called ourselves the unified command centre,” he explained. “It made it really seamless. The integration was easy because it happened early and went deep. At [almost] every level, [the Army unit] had a RCMP rep in their headquarters. Always integrated, which is why I think we had a lot of success, because the communication channels were tight.”

The partnership worked as a series of concentric circles. The centre circle, a relatively small, restricted access zone around the Pomeroy Kananaskis Mountain Lodge, was controlled primarily by the RCMP.

Surrounding that was a larger controlled access zone of the Kananaskis Valley and rising slopes of Mount Kidd and Mount McDougall, monitored by JTF Cadence through constant patrols and persistent observers and sensors.

The third ring, controlled primarily by the RCMP, focused on the major public roads and other access points. Throughout, Air Force and Army radars monitored the airspace while uncrewed aircraft systems (UAS) whirled overhead.

In fact, identifying the mostly off-the-shelf quadcopters, operated by both the Army and the RCMP, and deconflicting airspace as helicopters ferried world leaders to and from the Summit, presented one of the larger challenges, said Rutland.

“All these things were a lot to handle as the airspace got saturated with airframes. Managing

who could be up and when took a long time to work through.”

To ensure possible conflicts were understood early in the planning, the RCMP created an Integrated Safety and Security Group. Among its many working groups was an air team that tackled not just the employment of drones, but also how best to deploy the RCMP’s counter-UAS systems.

“How do we make sure that we’re bringing down the right UAS and not a friendly one? What if a helicopter needs to fly through?” Rutland explained. “There was no manual on how to do interagency UAS and counter UAS. But by June, we’d had lots of experimentation, lots of discussion, and lots of impressive capability.”

The preparation included the National Exercise Program, run by the RCMP but contracted through Calian, that delivered numerous planning conferences and a series of exercises with a distinct military flavour.

“When we got to the final objective, it was not the first time we had worked together,” Rutland said of the training.

Integrated Sense

While it was not a specific task for JTF Cadence, trialling some of the Army’s newly acquired capability became one of the operation’s noteworthy themes.

Throughout the event, soldiers conducted road and trail patrols and transported equipment with new lightweight, off-road tactical vehicles, a small part of a fleet of 90 platforms ordered from GM

Defense Canada for the brigade in Latvia.

As part of enhanced surveillance capabilities, the Land JTF employed the Thales Sophie Ultima long-range handheld thermal imager, a new system acquired under the Night Vision Systems Modernization (NVSM) project.

“It was fantastic,” said Rutland. “[Looking] up on a mountain top about four kilometers away, you could see the troops walking around with thermal and non-thermal sensors.”

Though the adoption of Tactical Assault Kit (TAK) software has been gaining traction across the Army for several years — Cloud TAK became a deployable capability in 2024 and members have used CivTAK, a civilian variant, with provincial firefighters in domestic operations — it played a critical role supporting situational awareness in the unified command centre.

“I could walk into the UCC, and on the big screens ... see a RCMP person, a CAF member, a helicopter,” said Rutland. “Every patrol that went out had someone with TAK on the phone. In the Ops Center in Calgary, they’d [be able to show me], that’s 3 PPCLI, A company, 1 Platoon, 3 Section on patrol. And I could see if there were RCMP with them.”

With so much data being passed in a small area, one of the surprising challenges at times was “saturation of signal” rather than limited bandwidth, he noted. That prompted discussions about information management in the modern battlespace.

“You want to get a picture on what’s going on ... but do I want to see every single patrol out



A convoy of Light Tactical Vehicles and ATVs conducting a patrol. Photo: MCpl Robert Mitchell



Members of the Domestic Response Company conducting patrol sweep training. Photo: Lt(N) Joshua Ehnisz

there? Do I want to see groupings and zones and then zero in? From a commander perspective, I don't need to know what patrol is roaming around in the 3 PPCLI access zone. I just need to know roughly where in the zones they are. The [LTF] commander would want to know. But there's some layers and filters you have to apply, otherwise you risk starting to plug in the thousand-yard screwdriver and move patrols around."

The operation was supported by real-time, 3D terrain-aware command-and-control software developed by Calgary-based Tacteris. "It's like project management software, but for military operations," explained Sundeep Kharey, vice president of business development, adding that while TAK is good for positional tracking, it has limits as a planning tool.

"Before Tacteris, the state-of-the-art focused on positional awareness — 'where is everyone?' But the harder question for commanders is: 'So what? How do we plan the next bound? Who is doing what, where, when, and why?' Turning awareness into coordinated action — again and again, as quickly as possible — that's the real challenge we solve."

The most significant technology story, however, was the integration of the Air Force TPS-77 from 42 Radar Squadron in Wing Cold Lake, Alta., with the Army's Iron Dome Multi-Role Radars (MRRs) from the 4th Artillery Regiment (General Support) in Gagetown, NB.

"I think we are going to see more and more of the Army and Air Force working together,

because the MRR and the TPS-77 have different capabilities," said Rutland. "The MRR was really good working around mountains and through the valley, whereas the TPS-77 was up on a huge hill in Cochrane. Together, they were able to create that overall picture — it was the fusion that made the difference."

As the Army rebuilds its ground-based air defence in the coming years, and needs to "link sensor to decider to shooter" at a pace that matches the threat, determining how to most effectively and collaboratively deploy assets will be critical, he suggested.

"If you want to fight in a modern environment, you'd better be able to sense, and out deep. By linking three MRRs plus [with] TPS-77, we had that all [feeding] into our headquarters and into the JFAC. [This] was a good initial step."

In the Army's managed readiness plan, 3rd Canadian Division will enter the build phase in 2026, ramping up for deployment to Latvia in 2027. Trialling new equipment as part of JTF Cadence is an important marker, Rutland said.

"When [1 CMBG] goes in the field for all their big exercises, they'll be able to leverage a lot of this technology. For example, in their command post, instead of having a bunch of maps, they had a giant [interactive] screen on their bird table. I think, conceptually, it put a lot of good ideas in the minds of all our folks ... and they will spread around as an institution."

Professional Display

The only significant incursion into the control area occurred in the air, when a single engine plane flew into the restricted airspace on the opening morning of the summit, prompting NORAD's Canadian Region to deploy CF-18 Hornets to intercept. The pilot initially failed to respond to multiple attempts to gain his attention, but eventually landed under his own power.

"From a ground perspective, there were lots of encounters, but [most] were accidental, [such as] hikers" unaware of the controlled access, said Rutland. "It was as we expected, and I think the reason for that is we had a robust presence. We had folks up in the mountains, we had folks up on the trails. It would have been tough to get in there."

Among the lessons he is leaving for the next such joint task force are the ones he inherited — plan and integrate, "early, often and deep." The JTF placed an emphasis on environmental stewardship — "leave the place as good as you found it" — which will also be a key point for a future commander.

"In the end, the Prime Minister and the Government of Canada were able to host that summit, get after big world problems, and not worry about security," he said. "And this was the Prime Minister's first real operational interaction with the CAF. I think we got to show the skills and professionalism of the Canadian Armed Forces, in which he is investing a lot." ■



4th Artillery Regiment Support Group members performing maintenance on the generator that powers the Medium-Range Radar. Photo: MCpl Steeve Picard

DEFENCEX: Beyond System Replacement

By Allan Joyner

In the sprawling logistics network of Canada's military, a quiet revolution is taking shape. What began as a modernization of the Canadian Armed Forces' (CAF) current enterprise resource planning system, Defence Resource Management Information System (DRMIS), has evolved into a technology-enabled transformation so profound that it has been rebranded DEFENCEX.

DRMIS currently handles the CAF's Financial Management, Material Management, Engineering & Maintenance Management, Infrastructure Management (Real Property), and Projects Management. It is the institutional

memory system that gives commanders information about their resources.

DEFENCEX is envisioned to play a larger role in data-driven, evidence-based decision support — a fundamental leap forward in overall CAF capability. This will position it as a critical component of broader digital transformation, particularly as a foundation piece for Pan-Domain Command and Control (PDC2) — Canada's equivalent of the U.S. Combined Joint All-Domain C2 (CJADC2) system.



CAF Imagery Technician

A transformation — from reactive to predictive, from fragmented to integrated—captures the essence of what DEFENCEX promises to deliver.

Brigadier-General Robichaud, Director General of Defence Enterprise Modernization and Solutions, emphasizes that DEFENCEX represents “a transformation project enabled by technology,” not a technology upgrade incidentally enabling some transformation. This distinction isn’t semantic — it’s strategic. Without placing transformation at the center, DEFENCEX risks becoming just another transactional system that finance and supply personnel use without fundamentally improving operational effectiveness.

An example using the current process illustrates the challenge. When Canadian Joint Operations Command (CJOC) needs to assess whether a tank squadron can deploy, the request triggers a cascade of phone calls and reports that can take three to four weeks to complete, delivering information that’s already outdated when it’s received. DEFENCEX envisions a dramatically different scenario, in which a CJOC J3 officer accesses a live dashboard showing the real-time status of any force element, with personnel readiness, equipment status, supply levels, and training currency all visible in one integrated view.

This transformation from what Robichaud calls a “handraulic” process of reviewing documents and outdated reports to real-time, data-driven decision-making represents the operational heart of DEFENCEX: consolidating information currently scattered across “multiple different systems and databases” into one dashboard that enables “live data-driven decisions.”

The rebranding from a DRMIS modernization project to DEFENCEX transformation reflects a philosophical shift. The name itself — DEFENCE with an “x” as an exponent — symbolizes expanding the power of defence operations beyond mere transactions. Where DRMIS serves primarily as a financial and supply management tool, DEFENCEX is designed to deliver operational effectiveness directly to the CAF.

This expansion includes predictive capabilities that current systems lack. When a tank squadron deploys, DEFENCEX is envisioned to intelligently predict increased spare parts requirements and trigger procurement processes before shortages occur. Instead of reactive supply management, the system will enable proactive resource planning based on deployment patterns and usage data.

DEFENCEX’s significance will extend far beyond logistics efficiency: It will serve as a critical enabler for PDC2, a CAF answer to 21st century warfare, requiring seamless data sharing across land, sea, air, space, and cyber domains.

The connection isn’t coincidental. DEFENCEX’s primary objective is “CAF Operational advantage,” leveraging modern technologies to optimize situational awareness and enhance operational readiness. This aligns perfectly with PDC2’s requirement for real-time situational awareness across all domains. While PDC2 creates the nervous system for multi-domain operations, DEFENCEX is the brain that will provide the institutional memory — knowing what resources exist, where they are, their operational status, and how they’ve performed over time.

The integration represents more than data sharing. It will enable what military strategists call logistics-informed decision making. It will ensure that operational planning incorporates real-time logistics intelligence, preventing the kind of gaps that have historically undermined military operations.



CAF Imagery Technician



5th Canadian Division members conducted Ex Staged Response in September 2024 to prepare for future domestic operations. Cpl Brad Upshall



1st Battalion, The Royal Canadian Regiment, and 2 Combat Engineer Regiment, conduct live fires in preparation for Ex Maple Resolve 2025. Photo: Cpl Nicholas Brunshaw

COLLABORATION AND SOVEREIGNTY

DEFENCEX development benefits from unprecedented international collaboration through the Defence Interest Group (DEIG), comprising 17 nations plus NATO and other organizations that all use the new version of Enterprise Resource Planning (ERP) SAP software (see sidebar). This collective influence helps ensure that defence-specific requirements become integrated into SAP's core products rather than requiring expensive customizations.

The collaborative approach proves particularly valuable when addressing common challenges. For example, Canada needs to track tire lifecycle data for specific vehicles, and other nations require similar capabilities. Rather than each country developing separate customizations, the group can collectively influence SAP to provide these capabilities as standard features.

This collaboration extends to operational realities highlighted by the conflict in Ukraine, where allied nations share similar logistics challenges with platforms like the Leopard 2 tanks deployed in that war. Being able to track spare parts availability, overall capability status, and store levels across allied nations becomes critical for sustained operations.

However, collaboration must be balanced with concerns about sovereignty. DEFENCEX will enable information sharing with allies while respecting security requirements and maintaining Canadian control over sensitive operational data. This balance reflects Canada's broader approach to defence partnerships — deep integration with allies without sacrificing independent decision-making capability.

DEFENCEX is in its definition phase, with implementation scheduled to commence in early 2027 and reach full operational capability by 2030. The current SAP system will continue under mainstream support until December 31, 2027, transitioning to extended maintenance through December 31, 2030.

This timeline strategically synchronizes DEFENCEX's full deployment with the conclusion of legacy SAP support, creating a seamless transition that aligns with the broader CAF digital transformation mandate targeting completion by 2030.

CULTURAL TRANSFORMATION

Perhaps the most profound aspect of DEFENCEX lies not in its technical capabilities but in the cultural transformation it demands and enables. The Canadian Armed Forces Digital Campaign Plan acknowledges that the CAF “can be characterized as linear, vertical, static, and process driven,” but transformation requires becoming “organic, horizontal, adaptive, and driven by outcomes.”

This cultural shift mirrors challenges faced across industries undergoing digital transformation, where success requires balancing cultural change with cultural continuity. DEFENCEX must preserve core military values — mission command, operational focus, service before self — while adapting how these values are expressed in a digitally integrated environment.

Robichaud's team has embedded change management professionals throughout the DEFENCEX project, working directly with stakeholders from Assistant Deputy Ministers to operational personnel. Their approach recognizes that effective transformation starts with understanding why people work the way they do.

When someone says, “I've done this for 20 years the same way, why would I change?” the response isn't to dismiss their experience but to demonstrate

SAP: The Digital Backbone of DEFENCEX

The Canadian Armed Forces Defence Resource Management Information System (DRMIS) is an enterprise resource planning system that has served the military for approximately 25 years. DRMIS is built on proprietary SAP Enterprise Resource Planning (ERP) software developed by the German company SAP SE.

SAP SE maintains complete ownership of both its software and the underlying database platform, making it impossible for other companies to provide these systems. While SAP SE develops and owns the core technology, numerous consulting and implementation partners assist organizations in deploying and customizing SAP solutions. This partnership model applies to both the CAF's current DRMIS system and the planned DEFENCEX upgrade.

DRMIS currently provides financial, material, engineering and maintenance, infrastructure and projects management. It is built on older SAP technology that predates SAP SE's current iteration, SAP S/4 HANA, and does not leverage the advanced capabilities that modern SAP technology can provide.

The “S/4” designation refers to SAP's latest generation platform, built on its HANA in-memory database. This architecture enables real-time processing of massive datasets, crucial when military decisions require instant access to supply levels, personnel readiness, and equipment status across multiple theatres of operation. The HANA technology processes information at memory speed rather than traditional disk speed — like the difference between accessing information from hard drives versus RAM.

For DEFENCEX, the technological foundation delivered in HANA's new Defence and Security module will allow integration of all force elements, force posture, and readiness information into a single system. Personnel qualifications, equipment status, fuel supplies, and ammunition levels become visible through one interface, eliminating the spreadsheets and disparate databases that currently fragment institutional knowledge.

This transformation represents more than a technological upgrade. It will allow the shift from reactive to predictive planning and support for military operations — for example, leveraging data on tire wear in a particular theatre and initiating appropriate orders for replacements.

S/4HANA also supports “disconnected operations,” a crucial capability when military units operate in communications-denied environments. The system can function independently of network connectivity, synchronizing data once communications are restored.

Ultimately, S/4HANA will provide the enterprise logistics backbone that enables DEFENCEX to integrate seamlessly with Pan-Domain Command and Control, ensuring that operational planning incorporates real-time logistics intelligence across all domains of warfare.



An artillery member of the NATO MNB in Latvia during Exercise Forge Thunder in July 2025. Photo: Sgt Aydyn Neifer

the tangible value of change. A project manager in materiel management needs to see how DEFENCEX improves their specific work, while a deployed tactical operator needs to understand how their data entry contributes to operational effectiveness.

The change managers have worked directly with end users through a series of validation exercises. These sessions tested how effectively DEFENCEX's customized SAP S/4HANA setup — which includes the specialized Defence & Security module — can accommodate existing business processes. The goal was to determine whether current workflows can be directly transferred to the new system or need significant redesign, while ensuring that critical operational processes remain intact and effective.

These exercises have revealed the scale of change required and underscored the value of the three-year implementation window. When testing personnel management processes, users need to track not just where someone is located, but their qualification status, training currency, and readiness level. The system must answer questions like: "Is this person green or red? Are they fit or unfit? Did they complete required training?" This granular visibility demands new approaches to data management and quality control.

Ultimately, DEFENCEX succeeds or fails based on its impact at the tactical level. Robichaud consistently returns to a fundamental question: "What are we giving to the soldier on the line?" Technology that doesn't improve operational effectiveness for frontline personnel misses the essential purpose of military systems.

This soldier-centric focus drives the cultural transformation enabling DEFENCEX. Rather than forcing personnel to adapt to rigid technological requirements, the system is designed to enhance how military professionals naturally think and work. Data entry becomes meaningful when users understand how their inputs contribute to operational decision-making.

Process changes make sense when they demonstrably improve mission outcomes.

The approach recognizes that military culture values proven effectiveness over theoretical innovation. DEFENCEX must demonstrate clear operational advantages to gain acceptance from personnel who rightfully prioritize mission success over administrative convenience.

INFORMATION ADVANTAGE

DEFENCEX represents more than system modernization. It's a foundational element of Canada's military preparation for an uncertain future. The system's integration with PDC2 capabilities positions Canada to maintain its role as a trusted and effective ally while preserving sovereignty over critical decisions. Success will ultimately be measured by operational outcomes: Can commanders make better decisions faster? Do frontline personnel have the resources they need when they need them?

DEFENCEX provides the foundation for answering these questions affirmatively. By transforming how the CAF understands and manages resources, it enables the kind of adaptive, outcome-driven culture that modern security challenges demand. The transformation begins with logistics data, but its impact will be felt wherever Canadian military personnel serve — from the Arctic to Latvia to wherever Canada's interests and values require defence.

In an era where information advantage often determines operational success, DEFENCEX will ensure that Canada's military professionals have the intelligence they need to make the decisions that matter most. The soldier on the line, the commander in the field, and the strategic planner in Ottawa will all benefit from the same accurate, timely, actionable information that turns reactive crisis management into proactive mission success. ■



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Scale and an unscripted enemy heighten realism for Reserve exercise



Story by Canadian Army Today staff / Photos by Cpl Richard Whittaker

Sometimes, the value of a training exercise is only as good as the opposing force. It's not quite a Sun Tzu maxim, but it rings true for the reservists of 32 and 33 Canadian Brigade Groups (CBGs) that made up a deployed battlegroup for a recent exercise.

During a series of assaults on Ex Stalwart Guardian in mid August, the platoons and companies encountered a "robust" opposition force (OPFOR) that repeatedly interdicted and disrupted patrols, to the extent that some had to "recommence to give a more realistic scenario to the entire exercise," said Colonel Frank Lamie, commander of 32 CBG, which led the 4th Canadian Division Reserve collective event in Petawawa.

"They created a really challenging environment," he said. "The OPFOR was constantly active to make sure there was a solid compete factor."

One of the reasons for a training experience more representative of complex combat operations was the lack of a script and the flexibility to take risks, suggested Master Corporal Nathan Madigan, a member of the Brockville Rifles (33 CBG) who served as an infantry platoon commander in the OPFOR.

His team of soldiers, mostly drawn from 33 CBG, included cooks, a member of the band, a new signaller and engineers, none at the operational functional point for infantry, but all with a willingness to experiment.

"I was afforded the flexibility and freedom of action to try out things



that maybe, if I was the Blue Force, and the intent was different, and the guidelines were stricter, I wouldn't have been able to do," he said.

The OPFOR was tasked with delaying the Blue Force at every opportunity, and received company level assets to do that, including engineers to construct defensive obstacles and positions, a direct fire support platoon with two .50 calibre machine guns, and other defensive materiel.

What differentiated Stalwart Guardian from most exercises was the flexibility to develop a strategy, receive approval, and then execute and adapt as the platoon saw fit.

Madigan noted that in many training events he has participated as a reservist, the OPFOR was "scripted to the point where it's, show up to this

location, do these things, and then either die or retreat. We were acting as a completely unscripted OPFOR, so everything that happened during this exercise from the OPFOR perspective, that was us thinking on the fly.

"I think that's what provided some of the robust training for the Blue Force. We were given guidelines but played within a sense of realism. In respecting that realistic aspect of training, I think we were able to provide some of that difficulty and forced them to make uncomfortable decisions."

Despite the limited experience of most of his junior members, Madigan said they embraced the training opportunity and gained valuable skills because they were encouraged to "step into more senior positions."



Stepping Up

Stalwart Guardian is the largest Reserve collective training exercise in Ontario, a demonstration of the ability of 32 and 33 CBGs to deploy a battlegroup-sized, combined arms team. It also serves as the confirmation phase for multiple individual training courses led by 32 Canadian Brigade Group Battleschool, a final exam of sorts for hundreds of artillery soldiers, armoured cavalry, combat engineers, combat service support personnel, and others.

Over 1,150 soldiers, primarily from 32 CBG and augmented by 33 CBG, participated in the 10-day exercise. And unlike previous iterations of Stalwart Guardian, where elements such as artillery or armour cavalry conducted

operations in Meaford and effects were represented virtually to the infantry and others in Petawawa, all units — light armored reconnaissance, artillery, combat support, engineers, signals, medical — were integrated in the Petawawa training area for a more “realistic” battlegroup level event, explained Lamie.

“We believe it’s been a significant period since we exercised at this scale, at least at 32 Brigade,” he said.

Moving that many Reserve soldiers into the field was no small feat, but it’s indicative of how reservists now view the exercise, and how they prioritize the opportunity to develop collective skills for possible future deployment.

In fact, in the first two days, as Stalwart Guardian was taking shape, soldiers who had arrived in Petawawa began calling and texting fellow



Master Corporal Nathan Madigan

reservists to join. Lamie had scheduled a bus for Monday in Toronto to bring those who could not leave work over the weekend. By Sunday, he had approved a second bus to meet the demand.

"It was the happiest extra expenditure I've ever made," he said. "That's momentum, and that's what we're hoping to engender in the next generation of soldiers. They are stepping up, they want to do great things, and we've got to put them into a construct where they're supported."

That challenged the leadership of 4th Canadian Division Reserve units to step up as well to ensure the success of the exercise, he added.

32 CBG is currently augmenting 2 Canadian Mechanized Brigade Group with approximately 300 soldiers either deployed or in pre-deployment training for the current and next rotations of Operation Reassurance in Latvia.

Nonetheless, leaders from across the two CBGs either filled positions in the Blue Force battlegroup or took up roles as observer-controllers to mentor, coach, and advise soldiers.

"[We had] lieutenant-colonels and chief warrant officers embedded with the soldiers at their various platoon, company and light battalion group levels, mentoring and advising to accelerate their improvement cycle," said Lamie.

With greater numbers of participants comes more opportunity for leadership, he noted.

"That went throughout the entire field training exercise. It occurred down at the troop level and up at the brigade tactical operations centre. One of our young captains, who isn't even qualified on his Army Operations Course, ended up successfully briefing the Army commander when he visited.



Similarly, the day before, a young lieutenant who had been in the Army for about three years, successfully briefed our division commander.

“We can step up someone in the next generation because they’re experiencing leadership and complex training at a much quicker velocity than we did when the operational tempo last meaningfully rose during Afghanistan. We became a greater component of each deployment group. That was a real privilege to serve with our Regular Force counterparts. We are seeing in the current operation in Latvia that the percentage is at significant scale and requiring more junior members than it necessarily did during the Afghanistan campaign. So, preparing our soldiers to a standard of operational excellence is a significant obligation that we have to meet.”

Under Stress

The scenario for Stalwart Guardian was a contemporary operating environment in Eastern Europe that offered a heightened level of realism for soldiers who had completed some of their formative training but were not yet at their operational functional point.

Along with the integration of newly acquired capabilities such as uncrewed aircraft systems (UAS) and high-speed refuelling, the exercise stressed new tactics for command-and-control and command post (CP) mobility under fire.

“The goal was to have a training context that was highly engaging, highly challenging, and highly relevant to what they may be asked to do as they integrate with the Regular Force on pre-deployment training,” said Lamie.



“From the moment they stepped off [the bus], the scenario was live, and we moved throughout the field exercise in that manner. There were some courses that were wrapping up, and so we were concurrently finishing their courses in the first 72 hours of the exercise. But the [overarching] scenario effectively lasted for the balance of six to seven days, with a final attack on an urban village objective. That realism brings extra motivation.”

Though the OPFOR did not have UAS, Madigan was aware that his platoon was often being scouted. While holding a defensive position, they saw one land and “went out and attacked that element of the UAS team. Although we didn’t have access to that asset, it was interesting to see it in the battlespace, and to figure out how we were going to fight against it,” he said.

The expanded scale of Stalwart Guardian tested the limits of the

battlegroups’ signals and communications equipment for CP survivability through mobility, but proved the core tactics. It also allowed the artillery, supported by engineers, to test the same concept of survivability by digging gun pits, firing rapidly, and then relocating while supported by overhead UAS.

“We think if we’re given the training space next year, we can meaningfully increase the tempo of that,” said Lamie.

“You’re stressing all your systems at this scale and pushing them to their threshold, so there’s lots of lessons learned. If you think about it, the brigade is doing this at scale for the first time in at least 10 years, if not more. Next year will be even more refined and give us opportunities to do more significant things, in alignment with Army modernization.” ■

Army VCs of '45

By John Boileau

Eighty years ago, in February and March 1945, soldiers of First Canadian Army under General Harry Crerar participated in one of the last major European campaigns of the Second World War. The aim of the Rhineland Offensive was to push the Germans back to and across the Rhine River. It witnessed some of the bitterest fighting of the war.

Three Canadian soldiers received the Victoria Cross (VC) for their courage during the offensive.

At 3:45 a.m. on Feb. 26, 2nd and 3rd Canadian Divisions led the way toward the Hochwald Forest, attacking on a 2,750-metre front behind a massive barrage. The Queen's Own Rifles of Canada (QOR) advanced in the standard battalion attack pattern of "two up, two back" towards their objectives of three small farming hamlets.

D Company on the left was to capture Mooshof, a heavily defended farm complex. The Germans had prepared defensive positions with strong points in three farm buildings. With two Shermans in support, Sergeant Aubrey Cosens's 16 Platoon attacked the buildings.

The platoon commander was seriously wounded, while others were killed and several more wounded. With only Cosens and four soldiers fit to fight, the sergeant immediately assumed command.

Cosens directed his men to provide covering fire. He then ran across open ground through heavy mortar and artillery fire to a nearby Sherman. He climbed onto it and directed its fire against German positions.

Cosens ordered the tank to attack the farm buildings, while he and his men followed. The tank rammed the first building, which Cosens entered alone. He killed several Germans and took the rest prisoner.

When Cosens found the second building empty, he went into the third, a heavily defended, two-story farmhouse, while under heavy small arms and machine-gun fire. He single-handedly killed or captured all its occupants and ordered his men to take up defensive positions.

As Cosens went to report the situation to his company commander, a German sniper shot him through the head, killing him instantly.

After more tough fighting, the QOR succeeded

in taking its objectives by mid-afternoon. For his courage in contributing to that hard-won victory, Cosens was awarded a posthumous VC. He is buried in the Groesbeek Canadian War Cemetery near Nijmegen in the Netherlands.

On Mar. 1, Major Fred Tilston of the Essex Scottish led C Company to the first line of German trenches along the edge of a woods. They crossed 500 metres of open ground in the face of intense small arms and machine-gun fire.

Tilston was wounded in the head, but led his men through three metres of barbed wire. When his left-hand platoon came under heavy machine-gun fire, he ran forward and knocked out the gun with a hand grenade.

Tilston left his reserve platoon to mop up and carried on with his two other platoons towards the enemy's second line. As he did so, he was severely wounded in the thigh.

Tilston quickly got back on his feet and rejoined his soldiers as they reached the enemy lines. The German position was an elaborate system of strongly-manned trenches and underground dugouts.

Vicious hand-to-hand fighting followed. Despite his wounds, Tilston continued to lead his men as they systematically cleared the trenches. By now, Tilston's company was reduced to 26 men. But before he could consolidate on this position, the Germans counterattacked repeatedly.

Tilston's confidence inspired his men as he moved in the open from platoon to platoon to organize his defence. He crossed open ground under fire six times to get essential ammunition and grenades from A Company on his right flank.

On his last trip, a mortar round blew a leg off below the knee and shattered the other. Barely conscious and in extreme pain, Tilston refused medical aid until he had briefed his one remaining officer on the importance of holding the position. He then allowed himself to be evacuated.

Tilston lost both legs and an eye. His courage resulted in the award of the VC, which he received from King George VI at Buckingham Palace.

On Mar. 24, at 10:00 a.m., about 14,000

paratroopers of 6th British and 17th U.S. Airborne Divisions jumped east of the Rhine to seize important ground. The British division included 475 men of 1st Canadian Parachute Battalion.

The Canadian paratroopers immediately encountered heavy machine-gun and sniper fire. At about 11.00 a.m., Corporal Fred Topham, a medical orderly, was treating casualties from the drop when he heard a wounded soldier's cry from an open area.

Two other medical orderlies who went out in succession to treat him were killed as they knelt beside him. Topham immediately ran forward through intense fire to assist the man.

As he treated the wounded paratrooper, Topham was shot through the nose. Despite severe pain and profuse bleeding, he continued to administer first aid. Under fire, Topham then carried the casualty to a nearby wood.

Topham refused treatment as he continued to assist other injured soldiers. Two hours later, when all casualties had been evacuated, he finally allowed his wound to be dressed. Topham was ordered to evacuate, but protested so strongly he was allowed to stay.

On his way to rejoin his company, Topham came across an ammunition carrier that was burning fiercely. Enemy mortar rounds were dropping in the area and the carrier's own mortar ammunition was exploding.

Despite the perilous situation, Topham immediately went out alone through enemy fire and exploding ammunition. He rescued three soldiers from the carrier and brought them to safety.

For his courageous conduct in assisting wounded soldiers, while in great pain himself, Topham was awarded the VC. As his unit was the first to return to Canada, Topham did not receive his medal from the King; he received it by registered mail.

No member of the Canadian Army has been awarded a VC since these heroes during the Army's last great battle of the Second World War. ■

John Boileau has visited Aubrey Cosens's grave in Groesbeek Canadian War Cemetery.



Cpl. Fred Topham, 1st Canadian Parachute Battalion, before the award of his VC.



Maj. Fred Tilston, Essex Scottish Regiment, relaxes somewhere in North-West Europe.



Maj. Fred Tilston at his VC investiture ceremony at Buckingham Palace.



Sgt. Aubrey Cosens, Queen's Own Rifles of Canada, was awarded a posthumous VC for his bravery during an attack on a heavily-defended farm complex.



Mission-Ready Modelling: Supporting the Army with advanced personnel modelling tools

BY JILLIAN HENDERSON, LISE ARSENEAU, MAUDE AMYOT-BOURGEOIS

The Canadian Army is currently at an inflection point in its modernization effort, marked by transformative changes to its organizational structure and operational capabilities. This effort encompasses a substantial expansion in personnel, alongside the establishment of entirely new formations such as divisions and regiments, designed to meet evolving strategic demands. In addition to structural growth, modernization involves the integration of advanced capabilities that will necessitate further increases in trained personnel to operate and sustain them effectively.

Concurrently, Canada's commitments to NATO are expected to intensify, potentially resulting in an expanded deployment footprint under operations such as Reassurance and Unifier. These developments place additional pressure on force generation and readiness. Furthermore, this ambitious modernization agenda is challenged due to Canadian Armed Forces (CAF) persistent recruitment shortfalls and retention issues. This poses a threat to the success of the Army reconstitution and modernization efforts.

All these changes and challenges to the Army force structure require innovative data-driven solutions, optimization and validation through workforce modelling. Some problems can be solved with simplistic tools such as spreadsheets. However, most problems are complex, require complex

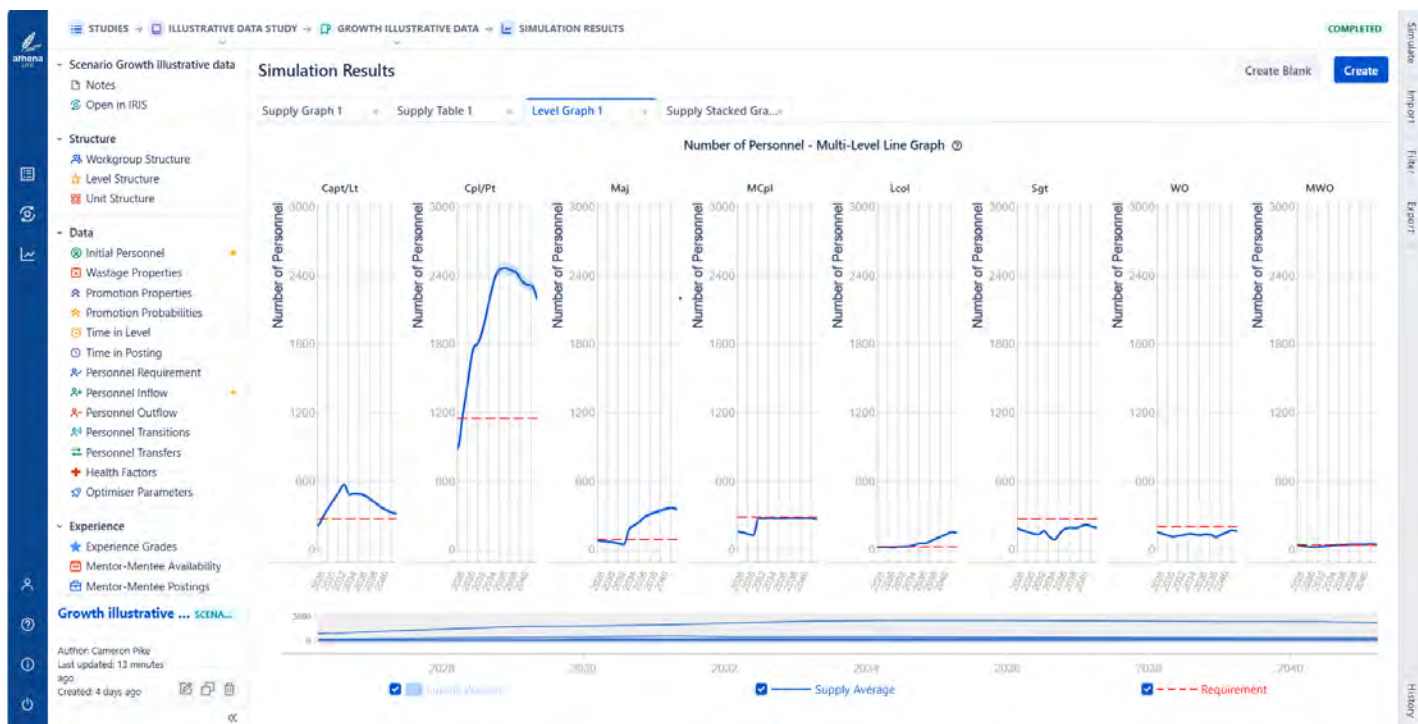
solutions, and are not possible to solve analytically.

Two workforce modelling tools that use simulation techniques to examine military workflows are presented here: Operational Research Integrated Graphical Analysis and Modelling Environment (ORIGAME), developed jointly by Defence Research Development Canada (DRDC) and Director General Military Personnel Research and Analysis (DGMPRA); and Athena, developed by the Australian Defence Science and Technology Group (DSTG) and the University of Melbourne.

ORIGAME and Athena are used by the Canadian Armed Forces and the Australian Defence Force to solve the range, from strategic, high-level to detailed complex workforce modelling problems.

ORIGAME

DRDC has used commercial off-the-shelf (COTS) software for modelling several occupations in the CAF. However, some aspects of military workforce problems are not handled well by available COTS software. To address limitations in scalability, flexibility and modularity, DRDC specifically designed ORIGAME for application to military human resources (HR) management



Athena Lite illustrative data

problems. Furthermore, ORIGAME is a Python-based environment, open sourced by DRDC and is available on the DRDC github (<https://github.com/DND-DRDC-RDDC>).

ORIGAME has the potential to model most military occupation career flows and examine how outcomes change when varying different parameters in the model, including changes to the occupation's establishment count and the number of trained personnel at each rank. However, it can take several months of development time and, while the models could be provided to the military occupation managers, it would be a challenge for them to program any changes to explore what-if scenarios unless they are proficient in Python coding.

ATHENA

DRDC has access to workforce modelling tools being developed by the Australian DSTG via a Memorandum of Understanding. Athena Lite and Athena Pro are both scalable, web-based decision support tools that are used by the Australian Defence Force to simulate, analyze, and forecast their workforce. Athena Pro is a hybrid agent-based and discrete event simulation (DES) environment for modelling military career pipelines that include training and career courses, detailed skill progression pathways, and complex prerequisite structures.

This allows the planner to examine workforce flows to determine where bottlenecks in the system persist, creating personnel shortages and skill gaps. Athena Lite is a DES that is less data intensive and computationally faster than Athena Pro, giving planners a high-level view of the workforce. It is particularly suitable for exploring how proposed policy changes would affect the workforce. A range of scenarios can then be explored in further detail using Pro.

TOOL SELECTION

One of the first steps to solving a complex problem is selecting the right method and tool tailored to the study. For military workforce problems, this includes selecting the right workforce modelling tool for the task, which is as simple as possible and as complex as required. Simple workforce questions can be solved mathematically using the computing functions of spreadsheets. More often, military questions are complex and require flexible simulations that can handle multiple attributes and parameters. For these studies, complex tools such as the customizable ORIGAME environment or the user-friendly Athena suite of tools are better options.

CONCLUSION

As the Canadian Army is advancing towards modernization and reconstitution, its personnel challenges call for robust, data-driven solutions. While simple computation suffices for basic analyses, purpose-built flexible, scalable, and customizable modeling environments such as ORIGAME and Athena offer critical capabilities to simulate, analyze, and forecast personnel dynamics. This enables military workforce planners to make informed decisions in support of the evolving operational demands and structural transformations.

By leveraging these workforce modeling tools, the Army can improve personnel forecasting, optimize force generation, and enhance readiness, ensuring the success of its modernization efforts. ■

CAPSTONE 2040: THE FUTURE IS THE DIVISION



Photo: Sgt Aydyn Neifer

"The pace of modern threats creates an advantage for militaries that are deployed early, at the right scale and with the right capabilities. The [Canadian Army] cannot afford to wait until the outbreak of armed conflict to begin scaling up and building modern capabilities to fight in MCO (major combat operations)."

So states the Canadian Army Capstone Operating Concept, a recently released outline for capability development out to 2040. It's a message stated explicitly in the introduction and resident throughout the concise document outlining threat considerations, institutional challenges, capability requirements, and dependencies the Army must confront in the coming years.

Produced by the Canadian Army Land Warfare Centre (CALWC), Capstone 2040 captures a rapidly evolving future operating environment of anti-access/area denial systems, uncrewed and autonomous weapons, long-range missiles, and disruptive technologies.

To operate effectively against "increasing [adversarial] technical abilities to exploit the space, cyber and electromagnetic operating environments," the Army must restructure to be able to conduct MCO at the division level, "where the full range of modern tactical capabilities are best organized and synchronized."

It's a significant change from previous operating concepts, where the focus for force development was geared to a brigade-level structure, and many capabilities were oriented for a battlegroup.

"That doesn't mean that we are all of a sudden a war fighting division and we can deploy as a division," explained Lieutenant-Colonel Mike Morin, CALWC's acting director "But it changes how we design our force for the future."

As indicated in *Inflection Point 2025*, the Army must transition from a "contribution warfare" model to an organization that excels in high-value warfighting roles. This shift requires operating at the division level, "where we truly integrate all other joint and multinational forces," he said. "It's not that smaller missions are unimportant, but we need to focus capability development on areas where we have the greatest impact in defending Canada."

And while CALWC has always designed future capability concepts with myriad environments as a backdrop, Capstone 2040 specifically denotes an army prepared to operate in three theaters: Canada and North America, the Euro-Atlantic, and the Indo-Pacific.

The operating concept is aspirational, Morin cautioned, but it starts to answer the question, "How are we going to fight in the future? And from that, how do we build this?"

The Army's near-term division-level requirements include long-range precision strike, indirect fires, ground-based air defence, Arctic mobility, and command and sense capabilities known by the acronym C5ISRT. But the operating concept makes clear the need for increased investment in a broader digital transformation that incorporates quantum computing, artificial intelligence, big data, and machine learning, a dedicated focus on sustainment, and the widespread adoption of uncrewed and autonomous systems, all supported by a more agile and responsive system of procurement.

The Army identified the need to strengthen its ability to sustain MCO based in part on a shortfall highlighted during an April wargame. "If you don't have sustainment in the [rear echelon] that

delivers the resources soldiers need to fight, the fight is not going to last long," he said.

How CALWC designs and develops future capability will be bolstered by an aggressive experimentation program. The Army must balance the availability of soldiers with capability trials, he noted, but in line with government policy, there is an urgency to match industry innovators with soldiers on exercises.

"There's no point of having the industry developing technology that when you put that into the battlefield, it is useless," Morin said. "And we might not understand fully what we need and what industry can provide. So, we need to work together."

Key priorities for division-level experimentation will be the sensor-to-shooter link — not just among Canadian assets, but also with allies — and uncrewed and autonomous systems of all types. "There's a lot of energy and intent to move uncrewed systems for the future," he said.

While CALWC will look to leverage testing opportunities across the Army, its largest commitment this coming year will be Project Convergence (PC), the U.S. Army's future series experimentations.

The Canadian Armed Forces has shifted in recent years from an observer to a full participant, showcasing more Canadian developed technology to the U.S. and partner nations. For PC Capstone 6, which is expected to be a definitive event for the U.S. Army's Next-Gen Command and Control program, the Canadian contingent will be led for the first time by a division commander, and will demonstrate sensor communication linkages and electronic warfare capabilities. ■



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