

‘I need this yesterday’ Using LLMs (Large Language Models) to create military public affairs messaging and content calendars.

Testing the topical waters of the rising tide of generative AI.

Zachary P Devereaux, DRDC Valcartier C2I

Jenna Lteif, DRDC Public Affairs

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Defence Research and Development Canada

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Abstract

The Canadian Armed Forces (CAF) and Defense Research and Development Canada (DRDC) face a unique challenge in maintaining effective public affairs campaigns with limited resources. This paper explores the integration of generative Artificial Intelligence (AI) tools in the creation and scheduling of content for military public affairs, with a focus on recruitment initiatives. Through a controlled experiment, we assess the potential of AI to enhance the efficiency and quality of public affairs communications (PAC) without compromising the integrity of the message, aligning with the CAF ethos of leveraging agile science and technology-based methods.

Significance for Defence and Security

In the wake of the pandemic, military organizations worldwide, including the CAF, have encountered significant force replenishment challenges. The adoption of generative AI in public affairs offers a promising solution to "do more with less," enabling professionals to generate high-quality, strategic content efficiently. This study examines the feasibility and effectiveness of employing AI tools, such as JasperAI, in the production of recruitment-focused communications. This experiment was designed to evaluate the efficiency gains afforded by AI tools in the creation and scheduling of public affairs content, specifically tailored for Canadian Armed Forces (CAF) and Defence Research and Development (DRDC) military public affairs activities. A key theme was recruitment initiatives, as the CAF faces a force replenishment challenge since the time of the pandemic¹. The authors, equipped with social media management expertise, were granted access to a government-issued computer with search capabilities powered by Bing Copilot, alongside AI composition platforms such as JasperAI and OpenAI Playground. The objective was to assess the expediency and quality of content production within a controlled, digitally assisted environment, paving the way for innovative practices in the dissemination of public affairs messaging. The research questions this paper asks are: 'how can military public affairs professionals "do more with less" without sacrificing quality of STRATCOM?' The results should be viewed as in keeping with the CAF Ethos of using agile and flexible science and technology-based methods to help achieve military goals.

¹ [Facing foreign conflicts, domestic disasters, Canada's top soldier worries about readiness | CBC News](#)
accessed 2024-05-14

Résumé

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Importance pour la défense et la sécurité

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1. Literature review

Discussions on the use of artificial intelligence (AI) within Canada's federal government have been ongoing since 2017². As the technology has evolved, its potential to support and improve operations has become clear, and increasingly attainable, particularly in a defence context³.

This supportive capacity extends to large language models, which are programs that use generative AI to conduct machine learning on massive datasets and output large amounts of coherent, human-like text⁴. Use cases of LLMs include text generation, content summaries, tone analyses, and translation. These capabilities could lend themselves especially useful in the world of government public affairs (PA).

While the term "public affairs" has many different definitions and corresponding responsibilities, (like media monitoring or issues management)⁵, it generally includes the interpretation of public opinion and the development of communications advice or strategy to further the aim of the organization at play⁶. Whether this aim is improving public perception or, in a military context, supporting recruitment, PA products generally require good messaging to reach their goal. Leveraging LLMs in the creation of this messaging, whether internal or external, has the potential to streamline PA processes, while expanding the scope of what's possible for PA professionals. For instance, using LLMs to create first drafts, summarize information, or develop basic strategies for addressing issues could decrease the time-and energy-burden of some of the more mundane, but necessary, PA tasks⁷. By doing so, professionals would have more opportunities to be creative, explore new avenues or channels, and focus on the work they find most interesting.

While the realm of public affairs could benefit greatly from using AI, there is an added layer of complexity when its use extends to government public affairs, particularly in the realm of social trust. A government should ensure its citizens trust the messages it sends. When the validity of these messages is called into question, it can have dire consequences. Not only on the strength of the government of the day, but for democracy at large - as has already been witnessed through the rise of misinformation, disinformation, and malinformation⁸.

It is, therefore, imperative that maintaining validity is placed at the forefront of technology adoption. One set of principles, called the "FASTER" (fair, accountable, secure, transparent, educated, relevant) principles, was developed by the Treasury Board of Canada Secretariat for federal institutions to ensure AI tools are responsible and maintain public trust⁹.

² [Progress on AI in government - Canada.ca](#) accessed 2024-08-10

³ [Foreword from the Deputy Minister and the Chief of the Defence Staff - Canada.ca](#) accessed 2024-08-10

⁴ [What Are Large Language Models \(LLMs\)? | IBM](#) accessed 2024-08-10

⁵ [\(3\) The evolving discipline of public affairs | Phil Harris - Academia.edu](#) accessed 2024-08-10

⁶ [Assistant Deputy Minister \(Public Affairs\) - Canada.ca](#) accessed 2024-08-10

⁷ [art-paper-chatgpt-in-the-public-sector-overhyped-or-overlooked-24-april-2023_ext.pdf \(europa.eu\)](#) accessed 2024-08-10

⁸ [How to identify misinformation, disinformation, and malinformation \(ITSAP.00.300\) - Canadian Centre for Cyber Security](#) accessed 2024-08-10

⁹ [Guide on the use of generative artificial intelligence - Canada.ca](#) accessed 2024-08-10

2. Background

Both authors completed an Ethics Cascade Training, which included in one case a hypothetical scenario involving the use of AI in military public affairs. This scenario provided a foundation for the experiment, mirroring the interaction between fictional characters and technologies in a real-world setting, thereby grounding the research in practical, ethical considerations.

The scenario is reproduced below, and was the source of inspiration as the fictional characters and technologies were, in a way, reproduced in the experiment by non-fictional actors and contracted technologies available at DRDC:

Table 1: Scenario from Ethics Cascade Training.

Scenario from ethics cascade training:
<p>Une officière d'état-major, la Majore Hinton, est chargée de préparer une note de synthèse pour son officier commandant pour recommander des stratégies visant à augmenter le recrutement, un sujet avec lequel elle n'a pas beaucoup d'expérience. Elle décide donc de tirer parti du nouveau système MilAssist pour cette tâche.</p> <p>La Majore Hinton commence par demander à MilAssist, « Comment rédige-t-on une note de synthèse efficace ? » En réponse, MilAssist fournit un guide étape par étape sur la manière de rédiger une note de synthèse, qui comprend des conseils sur la structuration de la note, la mise en valeur du message clé et la présentation de l'information de manière concise. Le résultat semble raisonnable et digne de confiance.</p> <p>Sur la base de ces directives, la Majore Hinton demande également à MilAssist de rédiger la note de synthèse. La commande qu'elle donne à MilAssist est : « Rédigez une note de synthèse qui recommande une ligne de conduite pour faire face à une pénurie de personnel et aux défis du recrutement pour notre unité. »</p> <p>MilAssist propose les recommandations suivantes:</p> <ul style="list-style-type: none">• <i>Mettre en œuvre des campagnes de recrutement ciblées pour attirer des talents diversifiés provenant de groupes sous-représentés.</i>• <i>Offrir des incitations compétitives, tels que des primes à la signature ou des avantages éducatifs, afin d'attirer et de retenir le personnel qualifié.</i>• <i>Rationaliser le processus d'intégration afin de réduire le temps nécessaire pour que les nouvelles recrues soient prêtes sur le plan opérationnel.</i>• <i>Collaborer avec les établissements d'enseignement locaux pour développer et promouvoir les parcours et les possibilités de carrière militaire.</i> <p>La Majore Hinton passe une heure à examiner la note, à la formater et à apporter quelques modifications mineures au contenu. Elle envoie ensuite la note à son officier commandant sans exprimer explicitement le rôle que MilAssist a joué dans la rédaction de son contenu. Son</p>

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officier commandant est étonné de la rapidité avec laquelle elle a accompli la tâche et l'envoi plus haut dans la chaîne. Elle est utilisée plus tard pour influencer les modifications de la stratégie de recrutement de l'unité.

Table 2: Scenario from Ethics Cascade Training Translated by OpenAI Playground API.

Translation with OpenAI Playground personal assistant

Begin quoted text -----

English Translation

A staff officer, Major Hinton, is tasked with preparing a briefing note for her commanding officer to recommend strategies for increasing recruitment, a subject with which she has little experience. Therefore, she decides to leverage the new MilAssist system for this task.

Major Hinton starts by asking MilAssist, "How does one write an effective briefing note?" In response, MilAssist provides a step-by-step guide on how to write a briefing note, which includes advice on structuring the note, highlighting the key message, and presenting information concisely. The outcome seems reasonable and trustworthy.

Based on these guidelines, Major Hinton also asks MilAssist to draft the briefing note. The command she gives to MilAssist is: "Write a briefing note that recommends a course of action to address a personnel shortage and recruitment challenges for our unit."

MilAssist suggests the following recommendations:

Implement targeted recruitment campaigns to attract diverse talents from underrepresented groups.

Offer competitive incentives, such as signing bonuses or educational benefits, in order to attract and retain skilled personnel.

Streamline the onboarding process in order to reduce the time it takes for new recruits to be operationally ready.

Collaborate with local educational institutions to develop and promote military career pathways and opportunities.

Major Hinton spends an hour reviewing the note, formatting it, and making minor modifications to the content. She then sends the note to her commanding officer without explicitly stating the role that MilAssist played in drafting its content. Her commanding officer is amazed at how quickly she completed the task and sends it up the chain. It is later used to influence changes to the unit's recruitment strategy.

End quoted text -----

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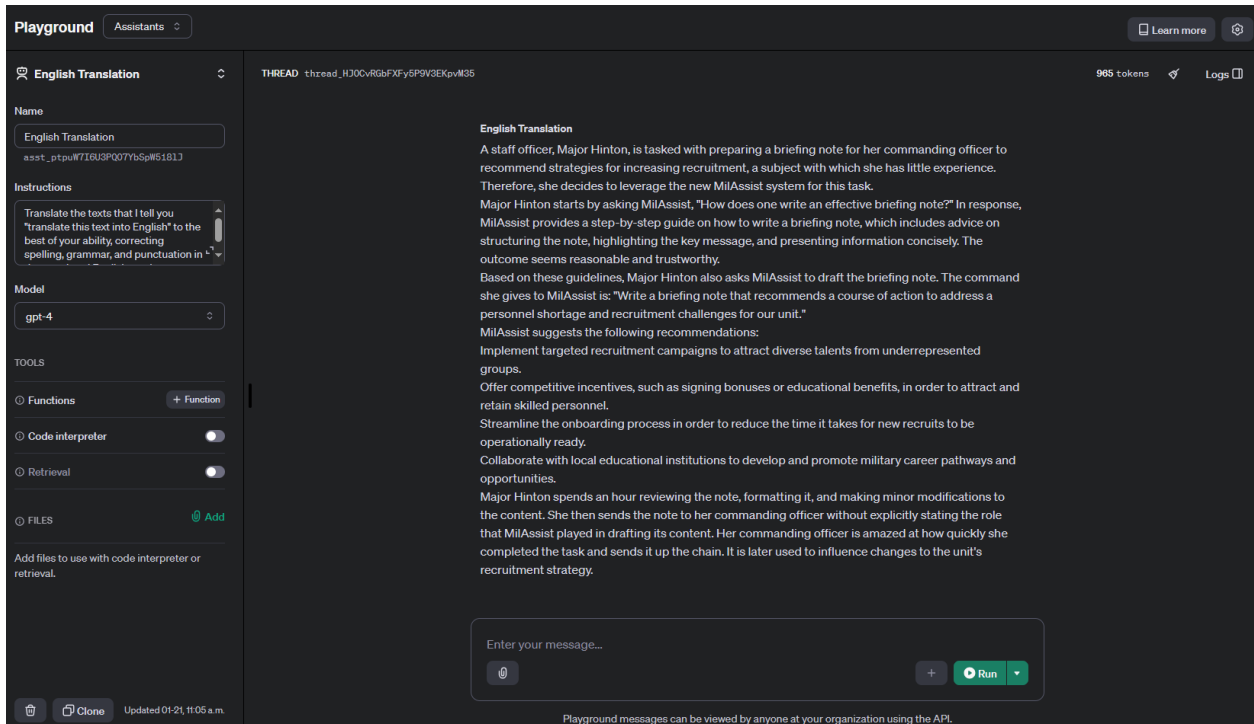


Figure 1: Open AI Playground API translation call asst_ptpuW7I6U3PQO7YbSpW5181J

Methodology

The experiment involved a qualitative assessment of content generated by AI tools, including briefing notes, blog posts, and social media advertisements, focused on enhancing CAF and DRDC recruitment efforts. The content was produced using prompts designed by public affairs professionals with expertise in social media management. The efficiency of content creation, the consistency of messaging, and the quality of output were evaluated, with particular attention to the role of human-in-the-loop (HITL) mechanisms in refining the AI-generated content.

3. Results

The experiment demonstrated a significant increase in the speed of content production, with AI-assisted tools producing comprehensive campaign materials within a fraction of the time typically required. The use of HITL and human-machine-interface (HMI) systems proved critical in maintaining the accuracy and appropriateness of the content, underscoring the importance of prompt engineering and subject matter expertise. Notably, AI-generated content displayed a high degree of linguistic consistency, aligning with established military communication standards.

Two briefing notes, a blog post, a Facebook ad, a X-Twitter post, and a content calendar were produced using three different AI tools in combination. These materials showcased generative AI's ability to adhere to the nuanced requirements of military public affairs, suggesting that generative AI can be an asset in strategic communication efforts, particularly in areas like recruitment where message precision and audience engagement are paramount. Moreover, prompt engineering was conversational and easy when compared to other tasks, such as computer program coding, or generating logistical or battle related planning.

Table 3: JasperAI Prompt Engineering for military public affairs.

Prompt 0.1: Write a briefing note that recommends a course of action to address a personnel shortage and recruitment challenges for our unit.

<

Personnel Strategy

Write a briefing note that recommends a course of action to address a personnel shortage and recruitment challenges for o...

Select a voice

Language: [English \(American\)](#)

✓ Current situation

Can you describe the current personnel shortage and recruitment challenges?

Training process takes too long, labour market is short on employees, so CAF is not a top choice, benefits of CAF careers are poorly understood, and socially being a soldier is not as highly regarded as it was in the past.

223/5000

Next

Figure 2: Prompt engineering with LLM assistance.

✓ Proposed solutions

What are your proposed solutions or strategies to address these challenges?

shorten and streamline training, improve awareness of career benefits, promote signing bonuses and education opportunities, publicize the fact that advancement through the ranks is more possible than ever before. Add to this job security, pension, health, and retirement benefits.

281/5000

Next

Figure 3: Prompt engineering with LLM assistance.

Table 4: Briefing note one by first LLM.

Personnel Strategy Content from GenAI (generative artificial intelligence)
<p>Begin quoted text, briefing note 1 -----</p> <p>Briefing Note</p> <p>To: [Recipient/Commanding Officer]</p> <p>From: [Your Name/Position]</p> <p>Date: [Date]</p> <p>Subject: Personnel Shortage and Recruitment Strategies</p> <p>Executive Summary</p> <p>The current personnel shortage within our unit is a significant concern, primarily attributed to an extended training process, a competitive labour market, and the Canadian Armed Forces (CAF) as a less favored employment option. These challenges are compounded by the diminished societal regard for military careers and a lack of public understanding about the benefits associated with being in the CAF.</p> <p>Current Situation</p> <p>Our unit faces a streamlined pool of potential recruits due to:</p> <ul style="list-style-type: none">• A lengthy training process that discourages prompt employment.• A tight labour market with many alternatives, lowering the CAF's appeal.• Inadequate public awareness of the career benefits provided by the CAF.• Reduced societal esteem for military roles affecting new recruit levels. <p>Recommended Course of Action</p> <p>1. Streamline Training Procedures</p> <p>Optimize and potentially shorten the training period without compromising the quality of our forces. Investigate cross-training opportunities and prioritize critical skills to accelerate the readiness of recruits.</p> <p>2. Enhance Awareness of CAF Career Benefits</p>

Create a targeted campaign to educate the public, especially potential recruits, about the tangible and intangible benefits of a CAF career. This will include job security, advancement opportunities, educational perks, comprehensive pension plans, and excellent health and retirement benefits.

3. Promote Incentive Programs

Implement signing bonuses for hard-to-fill positions and publicize educational benefits that provide long-term value beyond immediate compensation. High-value incentives can attract those weighing their career options more heavily toward financial gains or educational opportunities.

4. Improve Public Perception

Launch a multimedia marketing campaign to reshape the public image of military service into one that is modern, progressive, and conducive to personal and professional development. Highlight recent success stories of career advancements within the ranks to illustrate the potential for growth.

5. Job Security and Comprehensive Benefits

Stress the unparalleled job security and retirement benefits in CAF recruitment materials. Given economic uncertainties, these factors can significantly influence career decisions, especially in a competitive labour market.

Implementation Considerations

These strategies require cross-departmental collaboration, especially between human resources, marketing, and training departments. Additionally, a phased rollout plan should be developed with input from veteran personnel who understand the nuances of recruitment and retention best practices.

Financial Implications

Budget adjustments may be necessary to fund signing bonuses, expanded marketing campaigns, and the development of streamlined training programs. A cost-benefit analysis will determine the return on investment for these initiatives before being fully deployed.

Risks and Mitigations

There is a risk that scaling back on certain elements of the training program might impact the overall preparedness of our personnel. To mitigate this, training reforms should be carefully assessed and trialled to ensure they maintain the CAF's high standards. Additionally, overemphasis on monetary benefits can overshadow the honor and dedication inherent to military service. Messaging should equally focus on the pride and satisfaction derived from serving our country.

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Next Steps

6. **Initiate an internal review** of the current training program focusing on areas to streamline.
7. **Assign a task force** to develop the marketing campaign and outline its implementation.
8. **Consult with finance** to align incentives with budget allocations and forecast long-term payoffs.
9. **Schedule periodic evaluations** post-implementation to measure success and inform iterative improvements.

This briefing note has been prepared following recognition of our unit's pressing need for actionable strategies to remedy our staffing challenges. We believe that the recommended course of action will effectively confront our current recruitment issues.

Action Requested

Kindly review the recommended strategies and provide your approval to proceed with the planning and implementation stages.

[Your Full Name]

[Your Title/Rank]

[Your Contact Information]

End quoted text -----

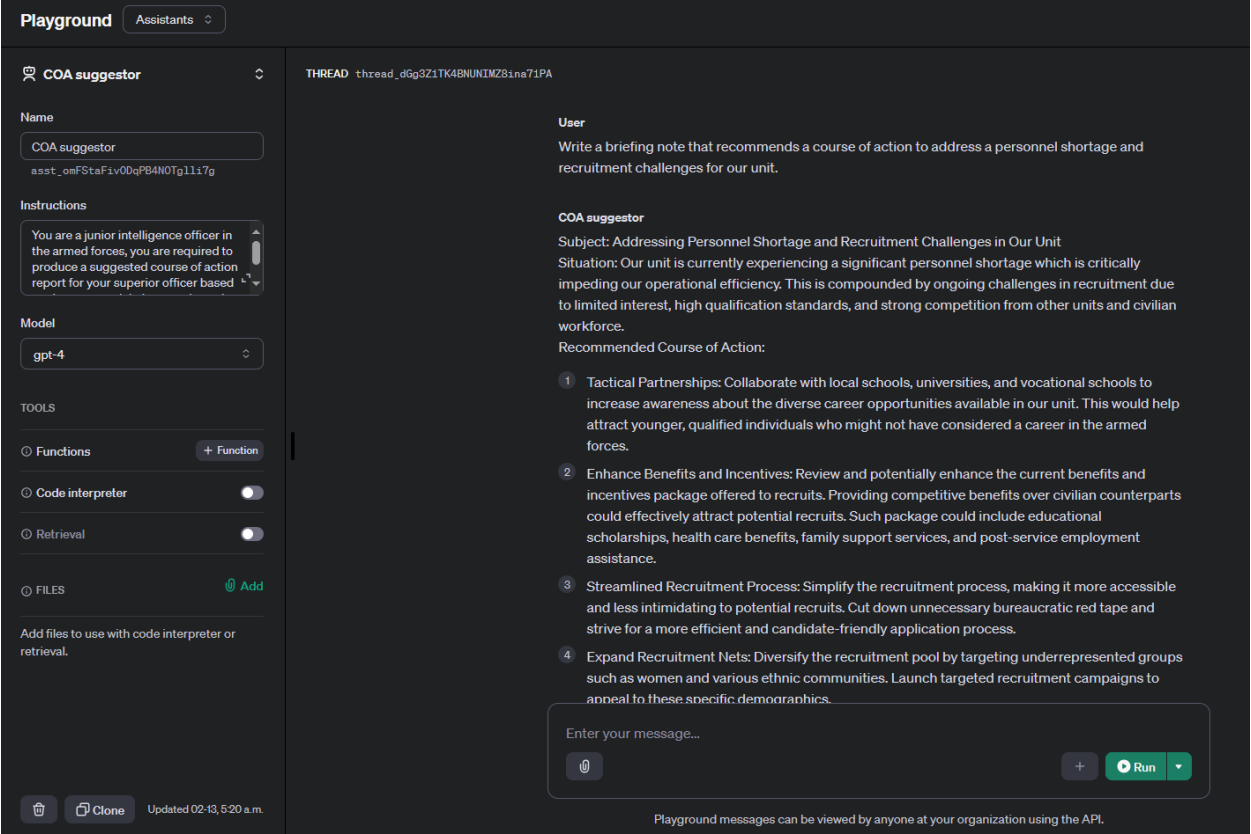


Figure 4: Prompt engineering triangulation with OpenAI Playground API COA assistant call
asst_omFStaFivODqPB4N0Tglli7g

Table 5: Briefing note two by second LLM.

Prompt 0.1.2 Triangulation with second LLM ‘COA suggestor’ Assistant – briefing note version two
<p>Begin quoted text, briefing note 2 -----</p> <p>User Write a briefing note that recommends a course of action to address a personnel shortage and recruitment challenges for our unit.</p> <p>COA suggestor Subject: Addressing Personnel Shortage and Recruitment Challenges in Our Unit Situation: Our unit is currently experiencing a significant personnel shortage which is critically impeding our operational efficiency. This is compounded by ongoing challenges in recruitment due to limited interest, high qualification standards, and strong competition from other units and civilian workforce. Recommended Course of Action:</p>

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Tactical Partnerships: Collaborate with local schools, universities, and vocational schools to increase awareness about the diverse career opportunities available in our unit. This would help attract younger, qualified individuals who might not have considered a career in the armed forces.

Enhance Benefits and Incentives: Review and potentially enhance the current benefits and incentives package offered to recruits. Providing competitive benefits over civilian counterparts could effectively attract potential recruits. Such package could include educational scholarships, health care benefits, family support services, and post-service employment assistance.

Streamlined Recruitment Process: Simplify the recruitment process, making it more accessible and less intimidating to potential recruits. Cut down unnecessary bureaucratic red tape and strive for a more efficient and candidate-friendly application process.

Expand Recruitment Nets: Diversify the recruitment pool by targeting underrepresented groups such as women and various ethnic communities. Launch targeted recruitment campaigns to appeal to these specific demographics.

Retention Strategies: Addressing our personnel shortage isn't only about recruiting new members but also retaining our existing ones. Develop effective retention strategies focusing on improved job satisfaction, flexible work schedule, clear avenues for career progression, and other morale-boosting initiatives.

Training and Development: Implement regular skill-building, personal and professional development programs to not only improve our workforce's performance but also to increase their career satisfaction. This could be a motivating factor for existing and potential personnel.

Public Relations Campaign: Create a favorable perception of our unit and armed forces in general, showcasing the noble purpose, camaraderie, and the importance of national service. This could pique interest among potential recruits and instill a sense of pride in serving our unit and the nation.

End State: The above strategies are intended to bolster our recruitment efforts, retain our current personnel, and build a resilient, diverse, and fully-staffed unit, capable of effectively accomplishing its mission. I recommend that we initiate immediate action to address our personnel shortage and recruitment challenges. This aligns with our goal to maintain a robust, mission-ready force that serves the nation's interests efficiently and effectively.

Recommendation: It is recommended that this proposal be approved and implemented expeditiously.

[Your Name] [Your Rank]

End quoted text -----

This is an example of a paragraph that follows the section title.

Discussion

The findings suggest that generative AI has the potential to revolutionize military public affairs by enhancing the efficiency and consistency of content production. The successful integration of AI into these processes hinges on effective prompt engineering and the expertise of the human operators, who play a vital role in overseeing AI outputs and ensuring they meet the strategic objectives of the campaign. This study highlights the feasibility of adopting AI for non-sensitive

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content translation, internet research, and social media campaign management within the military context.

The second briefing note was judged to be less complete and useful than the first briefing note, in part due to expanded prompt engineering. Therefore, the first briefing note was chosen to be translated into French, with additional grammar correction. This two-step process used pre-programmed AI assistants for 'French translation' and 'French grammar' and resulted in the translation below. It is important to note that the translation function is a key approved activity according to DND (Department of National Defence) / CAF AI guidelines¹⁰, and lightens the workload of the public affairs officer, while simultaneously meeting the language requirements of internal command. It would also be possible to translate other outputs that are focused on recruitment into niche languages for target audiences. Note that the formatting of LLM 1 was lost in the translators of LLM 2.

Table 6: Briefing note one translation.

Prompt 0.1.3 Translate into French for chain of command
<p>Begin quoted text, translation of briefing note 1 -----</p> <p>Note de Briefing À : [Destinataire/Officier Commandant] De : [Votre Nom/Position] Date : [Date] Objet : Pénurie de Personnel et Stratégies de Recrutement</p> <p>Résumé Exécutif La pénurie de personnel actuelle au sein de notre unité est une préoccupation majeure, principalement attribuable à un processus de formation prolongé, à un marché du travail compétitif et aux Forces armées canadiennes (FAC) en tant qu'option d'emploi moins privilégiée. Ces défis sont exacerbés par le déclin du respect sociétal pour les carrières militaires et un manque de compréhension publique quant aux avantages associés à être dans les FAC.</p> <p>Situation Actuelle Notre unité est confrontée à un vivier restreint de recrues potentielles en raison de : Un processus de formation long qui décourage l'emploi rapide. Un marché du travail serré avec de nombreuses alternatives, réduisant l'attrait des FAC. Une conscience publique insuffisante des avantages de carrière offerts par les FAC. Un respect sociétal réduit pour les rôles militaires, affectant le niveau des nouvelles recrues.</p> <p>Plan d'Action Recommandé Rationaliser les Procédures de Formation Optimiser et potentiellement raccourcir la période de formation sans compromettre la qualité de nos forces. Examiner les opportunités de formation croisée et prioriser les compétences critiques pour accélérer la préparation des recrues.</p>

¹⁰ [The Department of National Defence and Canadian Armed Forces Artificial Intelligence Strategy - Canada.ca](#) accessed 2024-05-14

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Améliorer la Conscience des Avantages de Carrière des FAC

Créer une campagne ciblée pour éduquer le public, en particulier les recrues potentielles, sur les avantages tangibles et intangibles d'une carrière dans les FAC. Cela comprendra la sécurité de l'emploi, les possibilités d'avancement, les avantages éducatifs, les régimes de retraite complets et d'excellents avantages de santé et de retraite.

Promouvoir les Programmes d'Incentive

Mettre en œuvre des bonus à signature pour les postes difficiles à pourvoir et publier les avantages éducatifs qui offrent une valeur à long terme au-delà de la compensation immédiate. Des incitations de grande valeur peuvent attirer ceux qui pèsent plus lourdement leurs options de carrière vers des gains financiers ou des opportunités éducatives.

Améliorer la Perception Publique

Lancer une campagne marketing multimédia pour remodeler l'image publique du service militaire en une image moderne, progressiste et propice au développement personnel et professionnel. Mettre en lumière les récentes histoires de succès d'avancements de carrière dans les rangs pour illustrer le potentiel de croissance.

Sécurité de l'Emploi et Avantages Complets

Souligner la sécurité de l'emploi et les avantages de retraite inégalés dans le matériel de recrutement des FAC. Étant donné les incertitudes économiques, ces facteurs peuvent influencer considérablement les décisions de carrière, surtout dans un marché du travail compétitif.

Considérations de Mise en Œuvre

Ces stratégies nécessitent une collaboration interdépartementale, en particulier entre les départements des ressources humaines, du marketing et de la formation. De plus, un plan de déploiement progressif devrait être développé avec l'apport de personnel vétéran qui comprend le mieux les nuances des pratiques de recrutement et de rétention.

Implications Financières

Des ajustements budgétaires peuvent être nécessaires pour financer des bonus à signature, des campagnes marketing élargies et le développement de programmes de formation rationalisés. Une analyse coûts-avantages déterminera le rendement sur investissement pour ces initiatives avant leur déploiement complet.

Risques et Atténuations

Il existe un risque que la réduction de certains éléments du programme de formation puisse impacter la préparation globale de notre personnel. Pour atténuer cela, les réformes de la formation devraient être soigneusement évaluées et testées pour garantir qu'elles maintiennent les standards élevés des FAC. De plus, une suremphase sur les avantages monétaires peut éclipser l'honneur et le dévouement inhérents au service militaire. Le message devrait également se concentrer sur la fierté et la satisfaction découlant du service à notre pays.

Prochaines Étapes

Initier un examen interne du programme de formation actuel en se concentrant sur les domaines à rationaliser.

Assigner un groupe de travail pour développer la campagne marketing et esquisser sa mise en route.

Consulter le service financier pour aligner les incitations avec les allocations budgétaires et prévoir les répercussions à long terme.

Planifier des évaluations périodiques après la mise en œuvre pour mesurer le succès et informer les améliorations itératives.

Cette note de briefing a été préparée suite à la reconnaissance du besoin pressant de notre unité pour des stratégies actionnables afin de remédier à nos défis de dotation en personnel. Nous

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croyons que le plan d'action recommandé affrontera efficacement nos problèmes de recrutement actuels.

Demande d'Action

Veuillez examiner les stratégies recommandées et donner votre approbation pour procéder aux étapes de planification et de mise en œuvre.

[Votre Nom Complet]

[Votre Titre/Grade]

[Vos Coordonnées de Contact]

End quoted text -----

Given that the quality of the briefing note was judged to be like the events of the ethics cascade scenario, e.g. surprisingly good for time taken to produce the text and requiring very few edits. A new task was created that aimed to promote DRDC employment as a positive career choice with good benefits, as part of the force replenishment problem from a distinct perspective.

Table 7: Why work at DRDC? Blog post content from LLM.

Prompt 0.2: Write a Blog post about why choosing DRDC as a career choice is a good move. Some additional benefits of the position include work that matters, being at the cutting edge of S&T, and international collaboration.

Begin quoted text, blog 1 -----

Why Choosing a Career as a Defense Research and Development Canada Scientist is a Strategic Move

Are you poised to make a groundbreaking decision in your STEM or political science career, one that marries innovation with patriotism? Becoming a scientist with Defense Research and Development Canada (DRDC) is an opportunity that offers profound benefits for ambitious graduates seeking a path less trodden. In this blog post, we will explore the compelling reasons why pursuing a career as a DRDC scientist could be one of the best decisions you will make.

A Mission That Matters

DRDC scientists are enlisted in a mission that transcends the confines of a conventional laboratory or a university research department. Engaging in the national defense arena imbues your everyday responsibilities with a sense of purpose that goes beyond personal ambition—it's about contributing to the safety and security of your nation and making a tangible difference in the world.

At the Forefront of Innovation

Defense Research and Development Canada is not just about defense—it's a hub of innovation where traditional boundaries of science are pushed every day. Working here means you're at the cutting edge of science and technology, from cybersecurity and artificial intelligence to aerospace engineering and biotechnology. For those passionate about being at the forefront of solving complex, multidisciplinary challenges, a DRDC career is unparalleled.

Collaboration on a Global Scale

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As a DRDC scientist, your work does not exist in isolation. You become part of a network that spans not just the breadth of Canada but the globe. Threading through international partnerships and alliances, you'll collaborate with some of the brightest minds in defense science and technology worldwide. Each project is an opportunity for cross-border innovation and knowledge-sharing, giving you a unique global perspective that few other careers can provide.

A Rewarding Journey

DRDC scientists enjoy rewarding careers that encompass competitive compensation, excellent benefits, and a balance between professional life and personal time. Additionally, the organization fosters continuous learning and growth, offering access to advanced training and education programs to ensure you stay abreast of the latest technological advancements and research methodologies.

Serve Your Nation, Serve Your Ambition

Choosing a career at DRDC allows you to wear your patriotism on your lab coat. Every day, you work on projects that prioritize the safety and advancement of your fellow citizens. From seasoned professionals to emerging researchers and graduate students, DRDC opens doors to careers that profoundly impact our collective future.

To the bright minds in graduate schools across STEM and political science disciplines, intrepidly crafting your own career narrative—consider the strategic choice of becoming a defense scientist. It's more than a job; it's a trajectory that propels you into significant work, constant innovation, collective success, and personal fulfillment, all while serving the greater good.

Prepare to harness the power of your education and channel it into a labyrinth of possibilities with the Defense Research and Development Canada. Are you ready to contribute to a legacy of innovation and a safer tomorrow? The pathway to becoming a DRDC scientist is not just a career—it's a calling.

Are you inspired to explore a career with Defense Research and Development Canada? Visit DRDC's career page for the latest opportunities and join a community shaping the future of defense research and development. Your role in advancing science and protecting the nation awaits!

End quoted text -----

Given that the content being produced was a decent level of quality, other than promoting benefits in comms material, the prompt engineering was used to address whether an LLM could help to produce social media advertising, and content calendars that would be part of the administration of an influence campaign meant to answer the force replenishment problem.

Table 8: Facebook ad generated by AI.

Prompt 0.3: Write a Facebook Ad to encourage Canadian Armed Forces recruitment.

Begin quoted text, Facebook Ad 1 -----

[!Canadian Armoured Vehicles](#)

[!Soldiers in Combat Gear](#)

[!Female Soldiers](#)

[!Helicopters](#)

Join the Canadian Armed Forces – Serve With Pride!

Looking for an extraordinary career path with a difference? Step into a world where you serve your nation, shape your future, and be a part of something bigger. ✨

The Canadian Armed Forces are calling for brave individuals ready to push their limits and make a real impact. Experience a career packed with action, unparalleled skills development, and the chance to work with cutting-edge technology. 🇨🇦 ✈️

Join us and find:

A proud heritage of serving Canada

Dynamic roles that keep you on your toes

Advanced skills training applicable throughout your career

Technical expertise in diverse fields

A close-knit community of fearless leaders and friends

Take the step towards an enriching journey - one that provides more than just a job but a means to make a real difference. Are you ready for never a dull moment?

Act Now!

💎 Reach out to a recruiter on social media or swing by your local recruiting office to chart your path with the Canadian Armed Forces. Your adventure awaits!

#ServeWithPride #CAF #CanadianForces #MilitaryCareer #MakeADifference

End quoted text -----

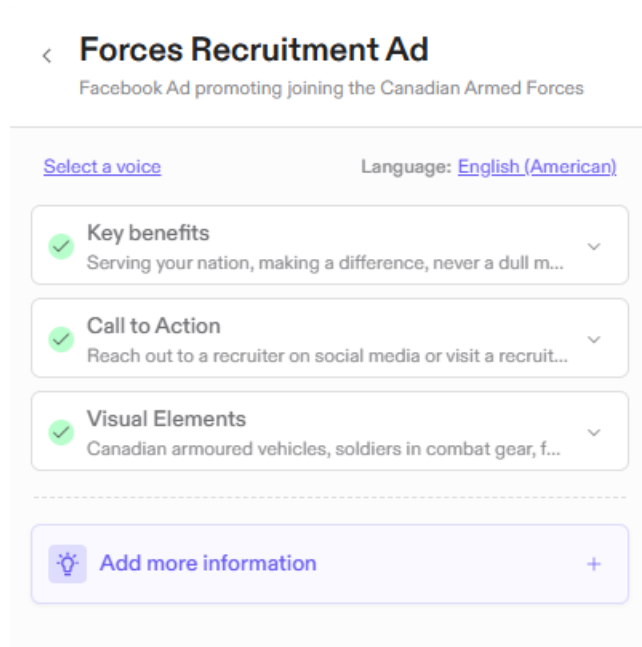


Figure 5: Advert prompt engineering with LLM assistance.

Prompt 0.3.1 Copilot image sourcing and Human-in-the-loop imperative:

Note that the image links were sourced from a Bing Copilot prompt and response leading to the following 4 selected URLs, out of a list of 16 URLs. These four were added as hyperlinks to the Facebook Ad text :

Table 99: Human edited list of images sourced by COPILOT¹¹

Images sourced by BING and incorporated into JASPER advert blocking
Vehicles - Canada.ca
CADPAT Multi-Terrain (MT) Modernized Combat Uniform - Canada.ca
Women in the Canadian Armed Forces: the facts speak for themselves - Canada.ca
Royal Canadian Air Force aircraft - Canada.ca

Human-in-the-loop imperative:

It is important to note that Prompt 0.3.1 brings up the importance of having a human-in-the-loop for prompt engineering and cross platform LLM usage. Point 4 in 0.3.1 quotes costs and delivery schedule overruns for the CH-148 Cyclone helicopter program, when the goal is to attract

¹¹ Full Copilot answer can be found after page 10, as an appendix.

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attention to CAF / DND aircraft, vehicles, and female personnel. Highlighting the CH-148 delivery overrun may not be an optimal strategy for improving recruitment, and sober second thought is needed for this to be recognized by the human operator. The human-in-the-loop imperative has been recognized by earlier DRDC research as necessary¹² and is also necessary throughout the prompt engineering process, to abide by the DND CAF generative AI guideline policies [see footnote 1].

With a scenario, blog post, and Facebook advert in hand, we turned to an X-Twitter post with paid promotion focused more narrowly on rewards and pluses of posting with the CAF.

Table 1010: Recruitment Tweet by LLM one..

Prompt 0.4: Create a Recruitment Tweet that mentions signing bonuses and paid education.
Begin quoted text, Tweet 1 ----- Join the ranks of the brave and secure your future! The Canadian Armed Forces offers up to \$19,000 CAD as a signing bonus plus paid tuition for higher education. 🎓 👤 Prepare for a career that matters. Take the first step towards a brighter future. Apply now! #ServeWithHonor #CAF ... !Soldiers in training End quoted text -----

Again, the list of URLs from COPILOT was reused to source an image of soldiers in training considered suitable for marketing content, and the LLM was prompt engineered to put the various components of social media marketing campaign together to help address force regeneration.

¹² [DRDC participates in multinational experiment Project Convergence CAPSTONE 4 \(science.gc.ca\)](#)
accessed 2024-05-14

< **Content Calendar**

write a content calendar schedule for posting a blog about joining DRDC, a Facebook Ad about joining the CAF, and an...

[Select a voice](#) Language: [English \(American\)](#)

☒ **Blog schedule**
April 1, 2024

☒ **Ad and Tweet schedule**
April 5, 2024

Add more information +

Figure 6: LLM marketing assistance for advert campaign administration.

Table 11: Content calendar by LLM one.

Prompt 0.5: Make a content calendar for the above materials.
<p>Begin quoted text, content calendar 1 -----</p> <p>Content Calendar Schedule</p> <p>Blog Post</p> <p>Title: Joining the Defense Research and Development Canada (DRDC)</p> <p>Date of Publication: April 1, 2024</p> <p>Preparation Steps:</p> <p>Finalize blog content by March 24, 2024</p> <p>Internal review and approval by March 27, 2024</p> <p>Prepare blog images and SEO tags by March 29, 2024</p> <p>Schedule blog post in content management system for April 1, 2024</p> <p>Post-Publishing Activities:</p> <p>Promote on social media platforms on April 2, 2024</p> <p>Monitor and respond to comments from April 2-4, 2024</p> <p>Evaluate engagement and perform a content impact analysis on April 8, 2024</p> <p>Facebook Ad</p> <p>Title: Join the Canadian Armed Forces (CAF) – A Call to Serve</p> <p>Scheduled Date for Ad: April 5, 2024</p>

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Pre-Ad Preparations:

Design ad creative by March 25, 2024
Finalize ad copy and CTA by March 28, 2024
Set targeting parameters and advertising budget by March 31, 2024
Ad review and compliance by April 3, 2024
Queue ad for release on Facebook for April 5, 2024

Ad Monitoring and Analytics:

Begin monitoring ad engagement on April 5, 2024
Conduct daily performance checks from April 6-10, 2024
Adjust targeting and spend based on performance by April 12, 2024
Generate performance report on April 19, 2024

Tweet

Content: Announcing signing bonuses & paid education with CAF enrollment!

Scheduled Date for Tweet: April 5, 2024

Pre-Tweet Preparations:

Draft initial tweet copy by March 26, 2024
Select imagery and hashtags by March 30, 2024
Final approval and scheduling by April 4, 2024

Post-Tweet Activities:

Engage with followers/retweets on April 5-7, 2024
Monitor hashtag performance from April 5-7, 2024
Evaluate tweet impact and reach on April 10, 2024

Note: All scheduled posts should be tuned according to any unforeseen events or real-time engagement metrics. Additionally, it is important to ensure that all communications are consistent and aligned across different platforms.

End quoted text -----

4. LLM Conclusion

In keeping with the original scenario, where a junior officer is asked to prepare a document with the help of AI that gives them a surprising leg up, the last prompt engineering of this article was to ask an LLM to provide a conclusion to an article explaining how using LLM can help military public affairs, based on the social media marketing campaign that was produced with HITL and HMI + LLM.

Table 12 12: LLM Conclusion.

Prompt 0.6: LLM Conclusion
Begin quoted text, conclusion ----- In conclusion, the integration of Artificial Intelligence (AI) in the recruitment processes of the Canadian Armed Forces (CAF) is not just a strategic move—it's an alignment with the core values of impact and innovation that the CAF embodies. Through AI, we can streamline the recruitment process, minimize human bias, and ensure that the CAF remains at the forefront of modern military forces by recruiting the best possible candidates. It's time to move forward boldly and decisively, recognizing that the employ of such advanced technology is an investment in the CAF's future excellence. We must not shy away from leveraging AI; instead, we should harness its potential to enhance efficiency, accuracy, and the overall effectiveness of our recruitment strategies. The utilization of AI in recruitment is a savvy use of our time and resources, and it is a step that will pay dividends in the strength and readiness of our forces. This essay has firmly established that AI can significantly contribute to the CAF's mission and values. Now, it is imperative that we take action. The call is simple: Do not fear the adoption of technology that aids and advances our goals. The CAF has always been a trailblazer, and in the age of technology, it's no different. Using AI in our recruitment processes is not just good—it's essential. It's time to commit to a future where AI and the human spirit work in tandem to maintain the proud legacy of the Canadian Armed Forces. Let us march ahead, together, into the new brigade where technology meets tenacity. End quoted text -----

5. Conclusion

The output provided by these LLMs are solid first draft public affairs products. They contain useful and relevant information, formatted in the manner requested by the user. While the products would require review prior to publishing, they are a good starting point, can help the user better formulate their thoughts, and can suggest ideas that were not previously considered quickly and consistently.

The use of LLMs to create these varied communication products in a 45-minute time frame demonstrates the efficiency and potential of AI adoption in a public affairs environment. Reducing the time it takes to create, format, and translate content is an obvious upside to these new technologies. However, from a public affairs perspective, there remain several important reasons for maintaining human supervision when developing products:

- While LLMs can create content quickly, they lack the knowledge and experience required to determine whether the content is:
 - Sensitive in the current public environment (e.g., the inclusion of the large cost quoted in point 4 of prompt 0.3.1 (Appendix 1)).
 - Following the most up-to-date Government of Canada guidelines for communication¹³, accessibility¹⁴, and branding¹⁵
 - Using correct Government of Canada terminology and spelling (e.g., prompt 0.2 uses the spelling “defense” rather than “defence”, which is the preferred form in Canada).
 - Entirely accurate (e.g., prompt 0.4 mentions a signing bonus of up-to \$19,000 CAD when joining the Forces, however this is job-dependent and not always the case).
- LLMs are trained on specific datasets that already exist – therefore, asking them to communicate new or changing information will increase the likelihood of content consisting of “hallucinations”, which is output that sounds convincing but is incorrect or misleading.
- A lot of public affairs work exists in a grey area. Judgement calls, risk assessments, and strategic foresight are essential components of communication, particularly when briefing upwards. While LLMs can create drafts and elaborate on input, they do not have a perspective wide enough to encompass the complexities needed to provide public affairs advice.

These limitations are significant enough to consider AI for the creation of complete public affairs content as in its infancy. However, its capacity to create a first draft and provide novel ideas is valuable in and of itself and could significantly reduce the time burden that comes with drafting material from scratch.

¹³ [DAOD 2008 - Table of Contents - Canada.ca](#) accessed 2024-05-15

¹⁴ [Guidelines on Making Communications Products and Activities Accessible- Canada.ca](#) accessed 2024-05-15

¹⁵ [Design Standard for the Federal Identity Program - Canada.ca](#) accessed 2024-05-15

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Another consideration is how the Canadian public will perceive the government using AI to communicate with them. Core tenets of public affairs include transparency and accountability, which can come into question if audiences feel deceived or manipulated by the content they see, despite whether it's technically allowed.

Future avenues for exploration could include creating a LLM specifically for the Department of National Defence/Canadian Armed Forces. This would allow for a more tailored and uniform voice and tone of department products and ensure that their quality is up to standard. This could also reduce the number of eyes needed on the products, thereby shortening the timeline from production to publishing.

Way Forward

Generative AI presents a viable solution to the challenges faced by military public affairs professionals, offering a means to streamline content creation and distribution while maintaining strategic messaging quality. This experiment underscores the importance of combining AI innovations with human oversight to optimize public affairs campaigns, particularly in recruitment initiatives critical to force regeneration. Further research is recommended to explore the broader applications of AI in military strategic communications and to refine the integration of technology and human expertise in these contexts. Of particular interest is the manner in which LLMs can contribute to CAF operations in the information environment (Eyre, 2024)

This paper demonstrated that having an AI assistant in an HMI at the disposal of a military public affairs officer is likely to have positive effects on efficiency and consistency of language, provided that the prompt engineering is aligned (Wallace). It is also important that the level of familiarity with the subject matter allows the user of LLM and AI to be able to detect errors, or hallucinations, on behalf of the LLM, and experience and familiarity with the tactics, techniques and practices (TTP) of public affairs administration, and content production, is a significant asset on the behalf of the human in the loop. Translation of non-sensitive content is the low-hanging fruit of military adoption of LLM technology, along with contextual search and research on the internet in a controlled and non-sensitive environment. However, planning and logistics for social media campaigns, including their advertising components, have been shown here to be adaptable to the military scenario with the use of LLM, and could potentially have beneficial impacts on important military subjects such as force regeneration or defensive and proactive maneuver in OIE (Forrester, 2023).

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6. Appendix 1: Prompt 0.3.1 Copilot

Begin quoted text -----

Certainly! Let's explore images related to the Canadian Armed Forces.
Here's what I found:

1. Canadian Armoured Vehicles:

- The Canadian Army operates a variety of armoured vehicles.
Some notable ones include:

- **Bison Armoured Vehicle:** A multi-purpose support vehicle for LAV III, with variants serving as ambulances or electronic warfare vehicles¹.
- **Coyote Armoured Vehicle:** A durable reconnaissance vehicle capable of withstanding intense gunfire¹.
- **Leopard 2 Main Battle Tank:** Heavily armoured and equipped with substantial firepower¹.
- **Light Armoured Vehicle (LAV) 6.0:** The primary infantry fighting vehicle¹.
- **Tactical Armoured Patrol Vehicle (TAPV):** A versatile wheeled combat vehicle used for reconnaissance, surveillance, and more¹.
- **Tracked Light Armoured Vehicle (TLAV):** Provides tracked command and control, ambulance, and maintenance and recovery support¹.

2. Soldiers in Combat Gear:

- The Canadian Armed Forces have recently introduced the **Modernized Combat Uniform (MCU)** featuring the new **Canadian Disruptive Pattern Multi-Terrain (CADPAT MT)** camouflage pattern. It enhances soldiers' performance across various operational environments⁵.

3. Female Soldiers:

- As of May 2023, women represent approximately **16.48%** of the total Regular Force and Primary Reserve members in the Canadian Armed Forces¹³.
- Women serve in various roles across the Navy, Army, and Air Force¹³.

4. Helicopters:

- The CH-148 Cyclone helicopter is unique to Canada, and its lifetime cost (buying, owning, and operating) is estimated to exceed \$14.87 billion, with most of the expense attributed to sustaining the aircraft⁹.
- Despite being a two-decade-old program, the air force is still awaiting delivery of the final two Cyclone helicopters⁹.

For more detailed information and images, you can visit the [official Canadian Armed Forces website](#) and explore their fleet^{1 5 13}.

Source(s)

1. [Vehicles - Canada.ca](#)
2. [CADPAT Multi-Terrain \(MT\) Modernized Combat Uniform - Canada.ca](#)
3. [Statistics of women in the Canadian Armed Forces - Canada.ca](#)
4. [Lifetime cost of military's Cyclone choppers set to soar past \\$14B ...](#)
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6. [Minister Blair officially accepts delivery of first new Armoured Combat ...](#)
7. [List of equipment of the Canadian Army - Wikipedia](#)
8. [Canadian Armed Forces Online Employment Application](#)
9. [A Force Structure Model of Canada's Military: Costs and Personnel](#)

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10. [Government Announces \\$3.7 billion contract for CAF Clothing and ...](#)
11. [Canadian Armed Forces - Helis.com](#)
12. [What we know so far about the Canadian Forces helicopter crash](#)
13. [Estimated life-cycle cost of military's Cyclone choppers rises to \\$15 ...](#)
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15. [Women in the Canadian Armed Forces: the facts speak for themselves](#)
16. [Women in the Canadian Armed Forces - Canada.ca](#)

List of symbols/abbreviations/acronyms/initialisms

DND	Department of National Defence
DRDC	Defence Research and Development Canada
DSTKIM	Director Science and Technology Knowledge and Information Management
HITL	Human in the loop
HMI	Human-machine-interface
LLM	Large Language Models
PAC	Public Affairs Communication