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INNOVATION BY DESIGN: A DESIGN-THINKING STRATEGY FOR THE CANADIAN ARMED FORCES

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Solo Flight

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INTRODUCTION

Announced in 2017, the Government of Canada's *Innovation and Skills Plan* articulated a clear national-strategic goal to “establish Canada as one of the most innovative countries in the world and to foster a culture of innovation from coast to coast to coast.”¹ Likewise, Canada's defence policy—*Strong, Secure, Engaged*—names “defence innovation” as one of its core elements. It states that the Department of National Defence (DND) will “identify needs and compete for the best ideas to take advantage of the most creative concepts and unique approaches that academics, universities, and the private sector can generate.”² Two key initiatives seek to advance these goals: the Innovation for Defence Excellence and Security (IDEaS) program and the Mobilizing Insights in Defence and Security (MINDS) program. The former seeks to outsource defence-related challenges to private industry and to provide funding to researchers and innovators to develop novel solutions.³ The latter program seeks to strengthen collaboration with academia to improve evidence-based policy development.⁴

These programs demonstrate a desire to increase collaboration between public and private sectors and to draw innovation into the CAF from external sources. Yet these initiatives appear to overlook the requirement that the Canadian Armed Forces (CAF) develop an *internal* capacity for innovation as well.⁵ This paper argues that a more holistic and deliberate strategy is required to address this gap and to foster a more innovative culture within the CAF. Applying

¹ Canada, “Innovation for a better Canada,” last modified 18 August 2021, <https://www.ic.gc.ca/eic/site/062.nsf/eng/home>

² Canada, “Strong Secure Engaged Canada's Defence Policy,” last modified 10 June 2021, <https://www.canada.ca/en/department-national-defence/corporate/policies-standards/canada-defence-policy.html>

³ Canada, “Innovation for Defence Excellence and Security,” last accessed 11 May 2022, https://www.canada.ca/en/department-national-defence/programs/defence-ideas.html?utm_campaign=not-applicable&utm_medium=vanity-url&utm_source=canada-ca_defence-ideas

⁴ Canada, “Mobilizing Insights in Defence and Security (MINDS),” last modified 9 August 2021, <https://www.canada.ca/en/department-national-defence/programs/minds.html>

⁵ C. Northey, “Rethinking Innovation: Examining Possibilities Beyond SSE,” (Canadian Forces College, 2019), 4.

Jay Galbraith's concepts for "designing the innovating organization,"⁶ this paper seeks to underscore that innovation can only be enhanced when the CAF's structures, processes, rewards and people are aligned to enable it. This paper further argues for a greater integration of design-thinking concepts and training into the professional military education (PME) streams of both officers and non-commissioned members as a key enabler in this broader effort. In addition to supplying new cognitive tools with which to fight in the increasingly-complex future operating environment, design-thinking education will aid leaders in their mandate to evolve the CAF into a more diverse and inclusive institution.

INNOVATION AND DESIGN-THINKING

Research by Baregheh *et al.* examined over sixty definitions of "innovation" extant in various disciplinary literatures to arrive at the following synthesis:

Innovation is the multi-stage process whereby organizations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace.⁷

Innovation is thus conceived as a continuous process that characterizes successful organizations in a competitive enterprise vice simply as a singular by-product (ie. the electric car) or process improvement (ie. self check-out at grocery stores). Of course, such a definition merits some adjustment when applied to the public sector. Lewis, McGann and Blomkamp explain:

Public sector innovation... is understood and defined as a process involving a change that is great and durable enough to affect the operation of the organization. The goal of this is to achieve widespread improvements in governance and service performance, in order to increase public value – not through marketization but through internal reforms and processes. Defined like this, public sector innovation

⁶ Jay R. Galbraith, *Designing the Innovating Organization*, *Organizational Dynamics* (Winter 1982): 5-15.

⁷ Anahita Baregheh, Jennifer Rowley and Sally Sambrook, "Towards a Multidisciplinary Definition of Innovation," *Management Decision* 47 No 8, (2009): 1334.

is also improvement. It is only innovation if – at the end of a possibly long and winding innovative process – it creates public value...⁸

Here, we note a similar emphasis on both “process” and “improvement” but with a narrower focus on the provision of government services and the efficiency of government itself. Another dimension of innovation is adaptation to changing environmental conditions. Damanpour defined innovation as “a means of changing an organization, either as a response to changes in the external environment or as a pre-emptive action to influence the environment.”⁹ However variably defined, continuous innovation across all aspects of the CAF is certainly required to sustain the organization’s competitive advantage in a fast-changing security environment. For the CAF, this translates to the need for innovation in numerous domains: firstly, in its product outputs—the form, function, and quality of its warfighting capabilities; secondly, in its services—its contribution to broader national-strategic goals; and lastly, in its own institutional efficiency—its structures, processes, and administration. Alternatively, it can be said that the CAF must be innovative across all “5 F” functions: Force Development, Force Generation, Force Employment, Force Management, and Force Sustainment.

In 2008, Tim Brown published an article in *Harvard Business Review* entitled “Design Thinking” that popularized the notion that design methodology could be applied beyond simple product design to help businesses become more user-focussed. He defined the concept as “a methodology that imbues the full spectrum of innovation activities with a human-centered design ethos.”¹⁰ Another definition describes design thinking as “a human-based approach to innovation that aims to establish creative ideas and effective business models by focussing on the needs of

⁸ Ulf Hjelm, “The institutionalization of public sector innovation,” *Public Management Review*, 23, no. 1 (2021): 54.

⁹ Fariborz Damanpour, “Organizational Complexity and Innovation: Developing and Testing Multiple Contingency Models,” *Management Science* 42, no. 5 (1996): 694.

¹⁰ Tim Brown, “Design Thinking,” *Harvard Business Review* (June 2008): 86.

people.”¹¹ Design thinking has also been described in terms of various attributes. The Stanford d-School identifies the following abilities at the heart of design thinking: navigating ambiguity, learning from others, synthesizing information, experimenting rapidly, moving between concrete and abstract, building and crafting intentionally, communicating deliberately, and designing design work (ie. approaching projects as design problems).¹² In essence, design schools emphasize creative thinking skills and methods in contrast to more analytical reasoning skills and methods characteristic of STEM disciplines.

In addition to having a unique focus, mind-set and approach, design thinking has also been described to follow a unique process methodology. Figure 1 illustrates one of the more common models of the design process originally introduced by Stanford’s d-School, which prescribes distinct and sequential phases to addressing a design problem: empathize, define, ideate, prototype and test (while stressing the need for iteration throughout). *Empathize* is the first phase, where designers seek to understand the needs of their target clients or users. Applied to the public sector, this would likely involve conducting extensive stakeholder analysis to better understand their unique perspectives, needs and challenges.¹³ In the *define* stage, observations are compiled and assessed to determine trends and to properly “frame” the problem.¹⁴ In essence, the design team seeks to determine the right problem or problems to be resolved. Once properly framed, the design team engages in divergent and iterative brainstorming. This phase of creative imagining—or *ideation*—explores a large range of possible solutions for testing. Once rough design options are identified, they are *prototyped* as a means to test for feasibility and to further

¹¹ Christian Muller-Roterberg, *Design Thinking for Dummies* (Hoboken: John Wiley & Sons, 2020), 9.

¹² Stanford d.School, “What we do,” last accessed 5 May 2022, <https://dschool.stanford.edu/about/>

¹³ *Ibid.*

¹⁴ *Ibid.*

refine the design concept.¹⁵ Though prototyping involves a degree of trialing, the *testing* phase refers to testing the proposed solution with the targeted audience. This can be achieved by various means, from actual product testing to story-boards and simulations. In the realm of public policy, testing may involve trial implementations or smaller-scale experimentation. Testing then allows the design team to go back to the drawing board and iterate further to resolve issues that arise in testing. If a design concept proves viable after extensive testing, it is ready to be implemented.

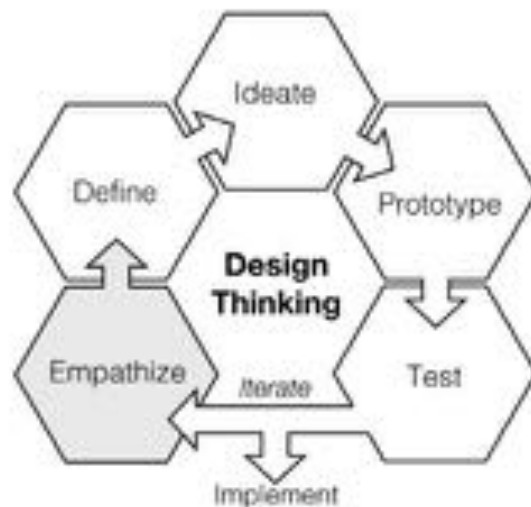


Figure 1 – The 5-Step Model of the Design Thinking Process
Source: Handa and Vashisht, *Design Thinking Framework*, 59.

The utility of design thinking is the subject of ongoing debate in the literature and researchers have commented extensively on the challenges involved in measuring design outcomes.¹⁶ Nevertheless, design advocates confidently point to examples of its successful application in large corporations. For instance, the Design Management Institute has developed a “Design Value Index” that contrasts a selected group of design-orientated businesses against the

¹⁵ Stanford d.School, “What we do,” last accessed 5 May 2022, <https://dschool.stanford.edu/about/>

¹⁶ Iker Legarda *et al*, “A Model for Measuring and Managing the Impact of Design on the Organization: Insights from Four Companies,” *Sustainability* 13, no. 22 (2021): 1-23; Jan Schmiedgen *et al*, “Measuring the Impact of Design Thinking,” in *Design Thinking Research* (Cham: Springer International Publishing, 2016).

broader S&P 500 to illustrate their superior growth over time (upwards of 211% over 10 years).¹⁷

There is also a rising trend of design application in public policy-making, with more than 100 public service innovation labs in existence worldwide as of 2015, with new labs being formed at a rate of one per month.¹⁸ Increasingly, design thinking is being championed in business literature as a means to supporting organizational change, expanding innovation, and improving individual leadership.¹⁹ Correspondingly, researchers have taken notice of the growing interest in design thinking and have begun to develop models and metrics to measure design thinking characteristics at the individual and organizational levels.²⁰

The exact relationship between design thinking practice and innovation as an outcome has yet to be empirically established, though definitions imply a strong connection between the two concepts. As Gheerawo observes:

The link between DT [design thinking] and innovation, whether described as an attitude, a process or a result, is also widely understood within the general understanding of the work. It has even been noted to promise innovation inspired by the way designers work, hinting that DT when used as a strategy, can actually guarantee results.²¹

¹⁷ Design Management Institute, "Design Value Index," last accessed 7 May 2022, <https://www.dmi.org/general/custom.asp?page=DesignValue&mssclid=33f6b49cced611ec9825ef77983a34cb>

¹⁸ Jenny M Lewis, Michael McGann and Emma Blomkamp, "When Design Meets Power: Design Thinking, Public Sector Innovation and the Politics of Policymaking," *Policy and Politics* 48, no 1 (2020): 117.

¹⁹ See: Tim Brown and Barry Katz, *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation* (New York: Harper Collins Publishers, 2019); David Dunne, *Design Thinking at Work: How Innovative Organizations are Embracing Design* (University of Toronto Press, 2018); Rob Elkington, *Exceptional Leadership by Design: How Design in Great Organizations Produces Great Leadership* (West Yorkshire: Emerald Publishing, 2018); Adriano Pianesi, "Design Thinking Plus Adaptive Leadership: Leading Organizational Change with the Change Canvas," *Organization Development Journal* 37, no. 3 (2019): 45-58.

²⁰ See: Dani Chesson, "The Design Thinker Profile: Creating and Validating a Scale for Measuring Design Thinking Capabilities" (ProQuest Dissertations Publishing, Antioch University, 2017); John S. Gero, and Julie Milovanovic, "A Framework for Studying Design Thinking through Measuring Designers' Minds, Bodies and Brains," *Design Science* 6, (2020).

²¹ Rama Gheerawo, "Design Thinking and Design Doing: Describing a Process of People-Centred Innovation," in *Security by Design: Innovative Perspectives on Complex Problems*, edited by Anthony J. Masys (Springer International Publishing AG, 2018): 13.

One way to relate the two concepts is to view design-thinking as a *means* to achieving the desired *ends* of innovation. Design thinking is both a mindset and a method—together forming an *approach*—that is conducive to innovation. In this framing, *organizational innovation* is understood as a resultant *capacity* within organizations to generate and act on new ideas. This innovative capacity, however, is affected by more than the just the mindset and methods applied by the organization's members. Other components of an organization's design also play important roles, as will be discussed in a later section.

DESIGN-THINKING IN THE CAF

To date, design thinking has struggled to establish a beachhead in the CAF. This is, in part, due to a lack of consensus concerning the utility of design thinking for military applications. In 2010, the United States Army introduced design concepts into their operational doctrine with the publication of Field Manual 5-0, *The Operational Process*. Reporting on its mixed reception, researchers found that numerous cultural, linguistic, and conceptual barriers continued to impede the integration of design concepts with operational practices.²² Their analysis indicated anecdotal support for design based on positive feedback from military practitioners but also underscored the need for broader design education, the incentivizing of design practice, and continued research.²³ Other research found that design concepts were poorly understood and recommended incorporating design methodology into earlier stages of officer and non-commissioned officer career training plans as a remedy.²⁴ Paul Mitchell also notes challenges faced in introducing design concepts to curriculums at the Canadian Forces College

²² Anna P. Grome *et. al.*, "Incorporating Army Design Methodology into Army Operations: Barriers and Recommendations for Facilitating Integration," (Fairborn, OH: U.S. Army Research Institute for the Behavioral and Social Sciences, 2012): 28.

²³ *Ibid.*, 32.

²⁴ Gerry L. Kitzhaber, "Exploring the Influence of Design Thinking on the Decision Making of Army Leaders" (ProQuest Dissertations Publishing, 2016): 120.

(CFC) in 2013—a journey he characterized as “stumbling into design.”²⁵ Both accounts testify to the somewhat unnatural fit of design thinking methodology with military doctrine. Advising *against* confining design thinking to Canadian doctrine, Mitchell comments:

Design is more of an art form rather than a process: it cannot be ‘taught,’ but learners can be ‘coached’ through design problems, just as artists, sportsmen, and trades are developed in terms of their practice. Placing it within the confines of a doctrinal definition effectively mechanises that which is more properly described as a ‘gestalt’ and would strip away all the value it lends to appreciating and managing environmental complexity.²⁶

So, if design thinking is more practice than theory and cannot be simply wedged into existing doctrine, how might its practice be expanded within the CAF?

Various perspectives exist in the literature concerning how “design thinking” can take greater root in military organizations. Ben Zweibelson proposes two likely avenues for design thinking to gain traction: top-down through the championing efforts of a senior leader to act as a “change agent for an entire service or military...”²⁷ or bottom-up, through the natural uptake of design methodology by a critical mass of practitioners by means of professional military education.²⁸ However, until design education features more prominently in professional military education, Zweibelson expects that “a small population of theorists, practitioners, and design enthusiasts will, like an island of misfit toys, operate on the outskirts of mainstream military institutions.”²⁹ Concurring with this assessment, this author posits that the expansion of design education initiatives by the CFC represents a promising way forward. Since Mitchell’s earlier involvement, the CFC has become somewhat of an expanding center-of-excellence for design

²⁵ Paul T. Mitchell, “Stumbling into Design: Action Experiments in Professional Military Education at Canadian Forces College,” *Journal of Military and Strategic Studies* 17, no. 4 (2017): 84.

²⁶ *Ibid.*, 101.

²⁷ Ben Zweibelson, “Blending Postmodernism with Military Design Methodologies: Heresy, Subversion, and Other Myths of Organizational Change,” *Journal of Military and Strategic Studies* 17, no. 4 (2017): 156.

²⁸ *Ibid.*

²⁹ *Ibid.*, 163.

education and practice within the CAF. The introduction of design thinking into the curricula of both the Joint Command and Staff Programme (JCSP) and the National Security Programme (NSP) at the CFC has begun to produce an alumni of amateur design thinkers that may well serve as a catalyst for the expanded application of design methodology in military affairs.

These efforts notwithstanding, how the CAF's capacity for innovation can be further expanded—beyond design education—remains in question. The overriding assertion, however, is that innovation must be grown from *within* the organization vice simply imported from external sources. As discussed, the CAF must build innovation into every facet of its organizational design and culture.

CREATING A CULTURE OF INNOVATION

Militaries ought to be amongst the most adaptive and agile organizations in existence given the life-and-death imperative to achieve competitive advantage and to operate in highly volatile environments. While it may hold true that the CAF demonstrates adaptability and agility at the tactical and operational levels, these attributes are arguably less a reality at the institutional-strategic level. It is at this level that the CAF operates more in keeping with traditional bureaucracies—hemmed in tightly by the slow-changing regulatory and policy constraints of the broader Department. The CAF knows it needs to innovate to catch up with emergent technologies and shifting geo-political realities, but its focus appears limited to the immediate needs of digitizing its processes and modernizing its fighting capabilities.³⁰

Innovation, however, is more than set of capabilities; it is a *capacity*. A certain novel capability

³⁰ Despite its title, the Assistant Deputy Minister (Data, Innovation, and Analytics) office, comprising a mere 67 employees, is primarily focused on data governance, enterprise-wide analytics, resource management modernization, digital services and artificial intelligence and not on “innovation” *per se*. See Canada, Top issues for Assistant Deputy Minister (Data, Innovation, Analytics), last modified 30 September 2021, <https://www.canada.ca/en/department-national-defence/corporate/reports-publications/transition-materials/defence-101/2020/03/defence-101/adm-dia.html>

may be referred to as an “invention” or deemed “innovative” but, in the fuller sense, innovation relates to an organization’s internal capacity to *adapt* to emergent changes (ie. in environment, technology, social realities) and to *create* improved solutions to new or existing problems. How then, might the CAF improve its capacity to innovate?

Building innovative capacity within organizations is a popular topic of research and debate in the literature, with many theories tracing their lineage to concepts advanced by Jay Galbraith. In *Designing the Innovating Organization*, Galbraith states:

It is my contention that innovation requires an organization specifically designed for that purpose—that is, such an organization’s structure, processes, rewards, and people must be combined in a special way to create an innovating organization, one that is designed to do something for the first time... An organization that is designed to do something well for the millionth time is not good at doing something for the first time.³¹

Illustrated here in Figure 2, Galbraith’s model proposes that organizations are comprised of five distinct components: strategy, structure, processes, rewards, and people. *Strategy* “concerns the long-range goals and objectives (‘what we do’) as well as the courses of action necessary to achieve them (‘how we win’).”³² It provides direction to the system. *Structure* is the internal configuration of the organization that determine how roles and activities are divided and allocated to “teams, departments and divisions.”³³ It organizes power within the system through the attribution of various authorities. *Reward systems* are the mechanisms that “aim to align the efforts and performance of individuals and teams in the organization with the organization’s goals”³⁴ as well as the “metrics that are used to measure individual and team performance.”³⁵

³¹ Jay Galbraith, “Designing the Innovating Organization,” *Organizational Dynamics* (Winter 1982): 5-25.

³² Jeroen van Bree. *Organization Design: Frameworks, Principles, and Approaches*. Cham: Springer International Publishing AG, 2021, 13.

³³ *Ibid.*, 14.

³⁴ *Ibid.*, 14.

Such systems shape motivations for action within the system. *People Practices* refers to “the human resources practices of hiring, developing, and promoting the right talent to successfully run the organizational model that was chosen.”³⁶ These practices influence the skills and mindsets available within the organization. *Processes* refers to the broad range of procedures that direct how work is performed and how entities coordinate, encompassing both “vertical process (prioritizing, planning, budgeting, reporting) and lateral processes (coordinating, aligning, liaising, integrating).”³⁷ These processes determine how information flows within the system. Altogether, the configuration of these internal components produce specific patterns of behaviour that, in turn, become characteristic of what can be called the “performance” and “culture” of the organization.

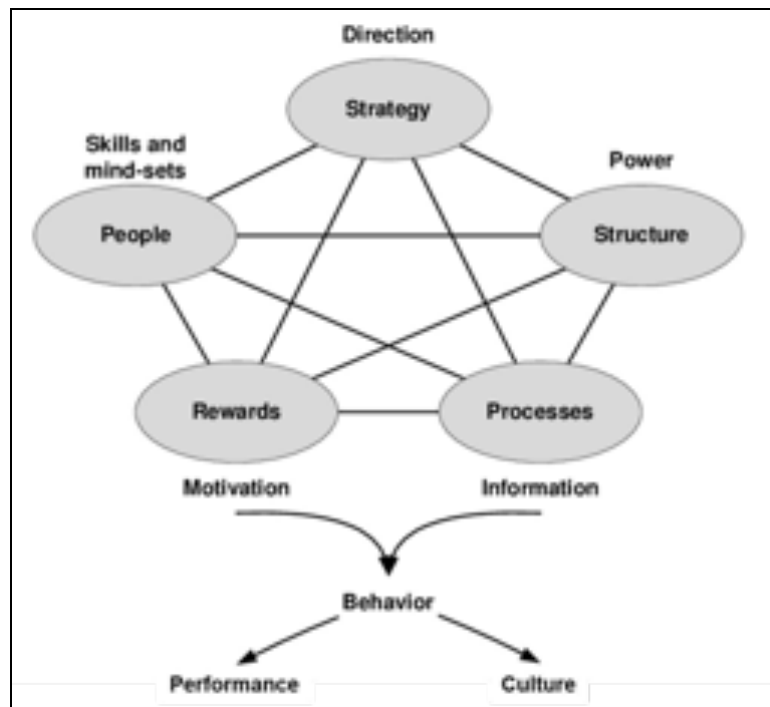


Figure 2. Galbraith's Five-Star Model

Source: Galbraith (2002), *Organization Design Components*, 15.³⁸

³⁵ *Ibid.*, 14.

³⁶ *Ibid.*, 14.

³⁷ *Ibid.*, 14.

³⁸ Figure shown as illustrated in Ronald Jean Degen, "Designing Matrix Organizations that Work: Lessons from the P&G Case," *Revista Eletrônica De Estratégia & Negócios* 2, no 1 (August 2009): 36.

As reflected in Figure 2, Galbraith emphasized that innovation required that the constituent components of the organizational design be *aligned* under a common strategy. Echoing this need for strategy and noting a similar void in United States, Lieutenant-Colonel Cassem states:

An organization cannot simply decide to become innovative. Ideas are only the beginning of innovation, and hard work coupled with organizational change must follow. However, businesses and air forces are purpose-built, and innovation is always at odds with the day-to-day accomplishment of those purposes. So for innovation to take root and thrive in the USAF, it must be intentionally separated from day-to-day mission execution (or the ‘performance engine’)... This separate innovation requires a long-term plan or strategy.³⁹

Arguing that innovation is fundamentally human-centered, Cassem posits that military organizations need to “create the conditions necessary for innovators to thrive by reforming three specific areas: organizational empowerment, formal education, and effective evaluation.”⁴⁰ Cassem’s recommendations largely track with Galbraith’s model, addressing issues of structures, people, and reward systems.

It is therefore concerning that no such plan or strategy exists to drive innovation for the CAF despite the prominence of the concept in nearly every forward-looking document.⁴¹ This is spite of the prevalence of bottom-up initiatives that confirm a widespread recognition of the need for more deliberate actions to promote innovation. For instance, “Operation Innovation” is a Royal Canadian Air Force initiative that seeks to foster a culture of innovation in the RCAF

³⁹ Christopher Cassem (Lt Col), “Toward an Innovation Strategy for the US Air Force,” *Air & Space Power Journal*, (Spring 2018): 103-108.

⁴⁰ Christopher Cassem (Lt Col), “Toward an Innovation Strategy for the US Air Force,” *Air & Space Power Journal*, (Spring 2018): 107.

⁴¹ “Innovation” is mentioned 32 times in *Canada’s Defence Policy - Strong Secure Engaged* and 7 times in *Advancing with Purpose: The Canadian Army Modernization Strategy*, but no distinct strategic document known to this author addresses CAF-wide innovation requirements head-on.

through partnership with not-for-profit innovation lab Communitech.⁴² For the Royal Canadian Navy, a “Director Innovation” leads a team dedicated to promoting “‘bottom-up’ idea generation from across the Navy by increasing idea input from every position and rank, providing more training courses, offering sailors more hands-on exposure to state-of-the-art technologies, bespoke training in ‘Design Thinking’, and delivering Creative Destruction Labs...”⁴³ Simply put, this paper proposes that a CAF “innovation strategy” be developed in order to harmonize and further-resource the advancement of these, and similar initiatives, across the organization.

Borrowing then from these aforementioned concepts of organizational design and innovation, this paper hopes to draw into question how effectively the CAF is designed for innovation. How central is innovation in its directing strategies? How well structured is the organization to permit disruptive innovation to occur in parallel with—*and in tension with*—its functionally-arranged and highly-stratified, bureaucratic and military structures? Are its reward systems conceived in such a way as to motivate innovation or to stifle it? Are the people that comprise the CAF trained and skilled in the right ways to support innovation? Are the processes that govern the flows of information within the organization conducive to the free exchange of ideas and playful (at times disruptive) collaboration? These are complex questions that demand deeper interrogation than can be accomplished in the scope of this paper; nevertheless, they serve as a starting point for describing how the CAF should approach its own design evolution.

⁴² Petra Smith (Major), “RCAF’s ‘Innovation Basecamp’ opens minds,” October 23, 2017, last modified 16 December 2021, <https://www.canada.ca/en/department-national-defence/maple-leaf/rcaf/migration/2017/rcaf-s-innovation-basecamp-opens-minds.html>

⁴³ Royal Canadian Navy, “RCN Innovation ushers in advanced tech,” 25 April 2022, last modified 25 April 2022, <https://www.canada.ca/en/department-national-defence/maple-leaf/rcn/2022/04/innovation-ushers-advanced-tech.html>

RE-DESIGNING THE CAF FOR INNOVATION

Approached as a design exercise, this paper seeks to outline how design-thinking could be employed to truly re-imagine and re-configure the CAF into an innovating organization. The proposed exercise seeks to accomplish three outcomes simultaneously: (1) to grow a cadre of design specialists through continued and expanded professional military education programs; (2) to demonstrate the utility of design thinking in military applications by producing and implementing solutions to incrementally improve CAF innovation; and (3) to combine these efforts under a broader, longer-term effort to produce a holistic innovation strategy for the CAF. Thus, this exercise is conceived as a prolonged experiment guided by a common theme—innovation—to be tackled iteratively by the growing community of design practitioners within the CAF. It seeks to leverage and build upon existing programs and initiatives led by the CFC. In form, the proposed experiment is elaborated upon here in three parts: the initial design challenge statement, the design framework, and a proposed roadmap.

The design challenge

The design challenge poses the following problem statement: *How might the CAF evolve its organizational design to optimize its capacity for innovation?* This statement is intended to orient design inquiry in a direction but may nevertheless require reframing itself. Figure 3 is intended to serve as a visual representation of the design challenge.



Figure 3. Innovation as an Organizational Design Challenge

Source: Original (created with Miro, <https://miro.com/app/>)

The design framework

The initial design framework borrows from Galbriath’s five-star model of organizational design in order to provoke inquiry across multiple domains internal to the CAF. The framework presumes that multiple inter-related design problems (in red) need to be explored in order to address the full scope of the organization’s design, to include its strategies, structures, reward systems, people, and processes. An example of a potential design problem could be: “how might the CAF adjust its organizational structures to enhance innovation?” Another design problem might focus on rewards: “how might the CAF better incentivize its members to contribute

innovative solutions to well-known and lesser-known problems?” Yet another may focus on the people-dimension: “how might the CAF improve the skills and abilities of its members to think and solve problems creatively?” Following the design-thinking process and conducting multiple iterations of framing and re-framing problems would serve to refine thinking towards a more holistic and unified view of larger design challenge.

Ultimately, the design team would need to validate the five-part framing of the problem through extensive stakeholder engagement. Moreover, design inquiry would need to expand beyond the current framing to include consideration of external stakeholders and environmental factors. Of note, the use of the model would be intended to guide inquiry, not to constrain it. The solution space is left intentionally blank and undefined, though desired outcomes are proposed (in blue) in the absence of a defined strategy.

The design roadmap

As described previously, the design exercise is intended to ground itself in real-world conditions and to serve, simultaneously, as a roadmap for advancing design-thinking education in the CAF. Acknowledging design-thinking’s current “fringe” status in the CAF, a conservative approach that builds on existing capacity and knowledge is the most realistic path forward. Thus, the experiment leverages senior-officer education programs at CFC as its start-point and builds outwards. The experiment envisions a progression of activities starting with continued efforts to reinforce the “people” component of the CAF’s internal capacity; in effect, expanding design education beyond the introductory-level familiarization that is afforded to members on JCSP and

NSP. For instance, specific design courses and workshops could be developed or curated for members of all ranks in order to facilitate broader participation in CFC-led design activities.⁴⁴

Next, the design experiment proposes to focus initial efforts on improving “processes” related to innovation—to include those mechanisms which facilitate or impede the flow of information and collaboration within the CAF. This is purely a pragmatic suggestion, as the longevity of the experiment itself would depend upon its ability to generate results and “processes” (to include policies) are perhaps the lowest-hanging fruit. It is unlikely that the structures and reward-systems of the CAF would see any adjustment unless driven by the implementation of top-down strategic direction. This author believes that no such strategic direction and “championing” of design efforts will emerge in the absence of more concrete evidence of its utility to the CAF. To that end, the experiment is proposed as an iterative series of more discrete design sprints that are bounded in such a way as to ensure that proposed solutions are viable to be prototyped, tested, and implemented.

Next, design efforts can work towards framing an appropriate strategy for the CAF to improve innovation in the long-run. This effort would be informed by an increasingly broad design community and would be legitimized by a lengthening résumé of successful design interventions. Strategy would also provide the required direction to implement proposed changes to various structures and reward-systems.

In summary, the proposed design experiment envisions a sustained bottom-up effort to demonstrate the utility of design thinking for applications in the context of the CAF while simultaneously addressing the broader and more complex (perhaps ‘wicked’) problem of

⁴⁴ Online design courses are presently offered by numerous universities and design schools, notably Harvard Business School (<https://online.hbs.edu/courses/design-thinking-innovation/>), Stanford University (<https://dschool.stanford.edu/programs/teaching-learning>), and IDEO U (<https://www.ideo.com/collections/design-thinking-courses>).

improving the CAF's capacity for innovation. In time, it is posited that this approach will generate the momentum necessary to justify the more formal adoption of design thinking methodology into professional military education streams. Moreover, guiding design inquiries along a consistent theme, vice in an ad hoc manner, is more likely to generate cumulate effects and broader-level solutions. More could be said on the design of such an experiment, but this brief outline is hopefully sufficient to achieve the aim; namely, to demonstrate how the CAF can leverage its existing design thinking expertise to tackle the closely-related challenge of improving innovation in the CAF.

Until such design work is done, the CAF will remain ignorant of its own potential. Even in the face of crisis and the ever-present threat of obsolescence, there will continue to be deficit in understanding about the problems themselves, let alone potential solutions. Efforts towards incremental improvement will undoubtedly continue—as in digitizing existing processes and upgrading key technological capabilities—but the capacity of the institution itself to evolve will lag behind. Absent a crisis, it is unlikely that CAF leadership will have sufficient will and confidence to make the disruptive changes that would be necessary to see the CAF evolve into a fundamentally different organization than it is today. However, design-thinking about these challenges would go a long way to generating options for when such conditions manifest.

INNOVATION AND CULTURE CHANGE

With so much discussion ongoing in the CAF concerning culture change it seems fitting to consider how design thinking might also serve a positive role in transforming the CAF into a more inclusive, empathetic and people-centered organization. Spurred into action by revelations of widespread sexual misconduct, the CAF is hyper-focussed on redressing issues of unprofessional conduct (as is reflected in the title of the newly-formed “Chief of Professional

Conduct and Culture” office).⁴⁵ CAF leadership has acknowledged, however, that issues run deeper than isolated conduct deficiencies. In fact, a recent advisory panel has reported that the Defence Team is tainted by elements of “systemic discrimination, racism and misogyny within [its] ‘system.’”⁴⁶ In the words of the Chief of the Defence Staff, there is an “urgent need to change our culture, not only to meet the expectations of all of our members and our citizens, but to ensure our future operational relevance.”⁴⁷ Design thinking, as a fundamentally human-centered approach, can aid in this effort. As Handa and Vashisht describe, “infusing design into organizational leadership makes it more people-focussed and fosters a culture of empathy, which is imperative for solving complex human problems.”⁴⁸ After all, improving inclusivity is all about being more attuned to *people*.

In line with the CDS’s remarks, what if the “problem space” was reframed around the CAF’s more general inability to adapt its institutional culture? In other words, what if the more fundamental and enduring issue confronting the CAF is its institutional stagnation, its need for greater innovation, and its failure to adapt to its changing environment? Approaching the problem in this manner, the connection between design thinking and culture change becomes quite obvious: both are concerned with radical adaption and improvement, both strive to employ an empathetic and people-centered approach, and both recognize the need to find creative

⁴⁵ Canada, “Chief of Professional Conduct and Culture,” last modified 5 May 2022, <https://www.canada.ca/en/department-national-defence/corporate/organizational-structure/chief-professional-conduct-culture.html>

⁴⁶ Canada, “Minister of National Defence Advisory Panel on Systemic Racism and Discrimination – Final Report – January 2022,” last modified 25 April 2022, <https://www.canada.ca/en/department-national-defence/corporate/reports-publications/mnd-advisory-panel-systemic-racism-discrimination-final-report-jan-2022/part-i-systemic-racism.html#toc9>

⁴⁷ Canada, “Message from the Acting Chief of the Defence Staff: Update to the Canadian Armed Forces on culture change,” last modified 12 July 2021, <https://www.canada.ca/en/department-national-defence/maple-leaf/defence/2021/07/message-from-acting-cds-update-to-caf-on-culture-change.html>

⁴⁸ Atul Handa and Kanupriya Vashisht, “Great Leadership Informed by Design” in *Exceptional Leadership by Design: How Design in Great Organizations Produces Great Leadership* (2018): 48.

solutions to wicked problems. Moreover, an “innovation” framing sees beyond the current crisis and could potentially lead to more holistic solutions that improve inclusivity across the CAF.

CONCLUSIONS

Strong Secure Engaged makes exceptionally clear that the rate of technological and geopolitical change is accelerating and that this context demands that the CAF become more agile.⁴⁹ Yet, such pronouncements are slow to translate into true organizational change. Efforts to simply “digitize” and “automate” are necessary but near-sighted—they fall short of addressing the institutional barriers that currently prevent the CAF from embracing disruptive innovation. The strategic goal of promoting a more innovating culture in the CAF is a design challenge in its own right: a complex problem requiring a holistic, harmonized and human-centered approach. As discussed herein, a combined top-down and bottom-up approach will be required to see the CAF transform into a more innovative organization. Top-down, by developing a long-term strategy to install “innovative arrangements” across the CAF and bottom-up, by inculcating members with a design-mindset through professional military education. Over time, and in an iterative manner, structures, processes, and reward-systems must also be aligned to ensure that strategic outcomes are both achieved and sustained.

This paper represents an initial effort to frame the problem space around design thinking and its “fit” within the CAF. It raises, rather than answers, questions regarding how components of the CAF as an organization—its strategies, structures, reward systems, people, and processes—might be adjusted to improve its overall capacity for innovation. It proposes that these questions be treated as “design challenges” in their own right, to be explored through a human-centered design lens. Moreover, this paper proposes design thinking as an ideal

⁴⁹ Canada, Strong Secure Engaged Canada’s Defence Policy, <https://www.canada.ca/en/department-national-defence/corporate/policies-standards/canada-defence-policy.html>

methodological approach to tackling the wicked problems confronting the CAF, not least of which are those relating to its ongoing culture change initiative. In short, it seems fitting that a design-thinking approach should be applied to re-designing the CAF as an *innovating organization*.

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