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ENHANCING CHALLENGE FRAMING IN DEFENCE ORGANISATIONS: TOWARDS REFLEXIVE METHODS

"If I had only one hour to save the world,
I would spend fifty-five minutes defining the problem,
and only five minutes finding the solution."

"We cannot solve our problems with the same thinking
we used when we created them."
Attributed to Albert Einstein

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ABSTRACT: *This article contributes to problem solving, design, and planning in defence organisations by arguing that a 'problem' or a 'challenge' is never objective, natural or ready-made. Challenges are contingent to the conditions under which individuals perceive and formulate them. As a result, this article understands 'challenges' and 'approaches' to address them as co-dependent on one another. This article recommends that officers should attempt to generate the most interesting and, we hope, innovative problem-solution pair or challenge-approach pair in order to integrate this insight into practice when problem solving, designing, or planning. Leaders and their teams can learn to inhabit this mind-set by finding inspiration in three modes observed through practice: initial challenge framing, challenge curation and co-evolution. For each of these modes, the article proposes reflexive methods and tools for enhancing introspection in challenge framing and formulation namely the Five Whys, question-storming, and loyal opposition. The article supports these recommendations and methods through insights gleaned from philosophy of knowledge, design theory, and on design experiences with the North American Aerospace Defence Command (NORAD) in 2019.*

KEYWORDS: *Challenge framing, challenge formulation, problematization, problem solving, problem statement, problem structuring, design theory, design methods, critical theory, system theory, planning, philosophy of knowledge, critical thinking, creative thinking*

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INTRODUCTION

Countless confessions we received underline that an increasing number of senior leaders seem less and less satisfied by the solutions they develop with their teams. Worse, many of these senior leaders often reach the conclusion that they were addressing the wrong challenge all along. These senior leaders admit that, if they were to address the same challenge again, they would spend more time investigating the nature of the challenge in the first place. They may not be aware of it, but these leaders are echoing an intuition expressed in the Albert Einstein quotations above. They recognize that the challenges they are tasked to address should not be taken for granted. In this article, we concur with that intuition. We argue that a challenge is never objective, natural or ready-made. Challenges are contingent. They are often the visible tip of a much deeper iceberg, glimpsed from a specific perspective within an organisation. To modify the famous axiom from George Orwell's *Animal Farm,* all challenges are equal, but some challenges are more equal than others.[2] In other words, the specific circumstances (psychological, organisational, social, or cultural) embedding those framing and formulating challenges may contribute to making some challenges more important than others. The obverse of this is that these circumstantial particularities may lead an organisation to elevate certain challenges over others that are equally pressing or relevant, to the detriment of that organisation. For this reason, enhancing challenge framing and formulation skills is paramount and even more so in the complex environment of the 21st century.

If leaders and their teams come to acknowledge this intersubjective and fluid nature of the challenges they are facing, how might they address them? In this article, we suggest that they must respond by bringing the conditions of possibility of their 'challenge' to awareness from several perspectives. Only then, can leaders and their teams hope to address a challenge effectively, sustainably, and perhaps, innovatively. In other words, we recommend leaders and their teams take a reflexive approach and mobilize reflexive methods when addressing a challenge. Building on arguments we develop elsewhere, leveraging the reflexive tradition means continuously questioning "what is the challenge?", "why is this a challenge?", or better, "what makes this challenge a challenge from our specific perspective?".[3] In practice this means continuously reframing and reformulating the challenge. By reframing, we mean following design theorists Donald Schon and Martin Rein, deliberately changing our frame of reference, that are, "the underlying structures of belief, perception and appreciation" turning an issue into a challenge to deal with.[4] Or perhaps more simply, after design theorist Kees Dorst, reframing means changing or re-anchoring a way of seeing, thinking and acting in the world in its most basic and implicit expression.[5] Continuously reframing and reformulating challenges afford leaders and their teams the capacity for shifting their mindset over a challenge. This process – that we call reflexive practice – is of vital importance: The very

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2 Orwell, G., *Animal Farm: A Fairy Story*. London: Secker and Warburg, 1945.

3 Beaulieu-Brossard, P. and Dufort, P. "Introduction: Reflexive Military Practitioners." *Journal of Military and Strategic Studies* 17/4. 2017. 6.

4 Schon, D. and Rein, M. *Frame Reflection: Toward the Resolution of Intractable Policy Controversies.* New York: Basic Books, 1995. 36.

5 Dorst, K. *Notes on Design: How Creative Practice Works.* Amsterdam: BIS Publisher, 2018, p.15. This definition is similar to the definition found in US army and US Marine Corps design doctrine focusing on a frame as a conceptual model of reality.

approaches leaders and their teams develop, we suggest, depend on the way they frame and formulate the challenge they seek to address.

Indeed, stressing the importance of challenge framing and its formulation is not new for defence professionals across NATO members and partners. This process can have several names such as 'problem identification', 'problem definition', or 'problem structuration'.[6] This article contributes to existing processes by recommending a reflexive approach and detailing accessible methods for practitioners. Using the words "challenge" and "approaches" instead of "problems" and "solutions" goes with this reflexive approach. Language matters. Planning and design doctrine found across NATO members and partners generally assume that leaders and their teams have access to an objective understanding of the environment and of the "problems" within it. Doctrine tends to understand "problems" as obstacles or barriers hindering progress towards a goal or an end-state. From this perspective, planners can break problems into smaller parts of a larger problem set and suggest course of actions to solve them. In contrast, we assume that "problems" are intersubjective. Using the word 'challenge' is a tentative first step in shifting this perception to understanding "problems" as complex issues.[7] In sum, this article encourages a return to the self when framing and formulating challenges. This reflexive approach, we suggest, is more conducive to the mind-shift leaders and their teams require to better intervene in the complex realities of the 21st century.

Fostering an awareness that every challenge is contingent is necessary, but not enough in itself. For this reason, this article will develop an exposition of the philosophy behind this assumption, which we will reinforce by sharing three modes of challenge framing and formulation. These three modes follow the life cycle of challenges that we can observe in a typical chain of command: Initial challenge formulation, challenge curation, and challenge co-evolution. To make these modes more intelligible, we will share the challenge framing and formulation experience of the North American Aerospace Defence Command (NORAD) strategic deterrence project team, CFC's lead design-informed curriculum team, and four student-led design teams in 2019. Overall, we believe that defence organisations can hope to preserve their relevance or, better, gain an advantage by adopting such a reflexive and intersubjective understanding of the challenges they are addressing in the complex environment of the 21st century.

WHAT MAKES A CHALLENGE A CHALLENGE: PROBLEMATIZATION

Challenges are not objective. They are contingent to what is visible from the perspective of specific individuals within a specific community or organisation.[8] Researchers refer to the process of *'problematization'* when they attempt to understand how a specific issue or situation became a problem or a challenge in a specific time and space. They also rely on *'problematization'* to refer to an individual or group actively attempting to convince others

6 Spurlin, D. "The Problem Statement: What's the Problem?". *Small Wars Journal.* 6 August 2017. https://smallwarsjournal.com/jrnl/art/the-problem-statement-%E2%80%93-what%E2%80%99s-the-problem, Accessed on 18 January 2021.

7 Defence challenges are complex or wicked in the sense that formulation depends on perspective, they cannot be solved definitively, and intervention may likely set conditions for unforeseen problems to emerge to name a few of several characteristics. For more on this notion, see Rittel, H. & Webber, M. "Dilemmas in a General Theory of Planning". *Policy Sciences* 4/2. 1973. 155-169.

8 Bason, C. Leading Public Sector Innovation: Co-Creating for a Better Society. 2nd ed. Bristol: Policy Press, 2018.

that what is seen as a non-issue is a problem or a challenge in a specific time and space. For instance, research shows how climate change became a challenge for most societies and how the green movement contributed in making it not only a challenge, but a pressing one.[9] A key figure in the literature dedicated to this phenomenon, Sociologist Charles Wright Mills is among the seminal authors writing on how biases influence challenge framing.[10] Mills shows how individuals and organisations implicitly shape challenges, and more broadly, ideas and projects, in alignment with their personal trajectory of thought and that of the society they inhabit. Likewise, philosopher Michel Foucault paid particular attention to how challenges became visible and invisible in history and how new approaches to address them became imaginable and legitimate accordingly.[11] Towards the end of his life, Foucault suggested that individuals should aspire to speak truth to power, especially when they are convinced that their organisation or the wider society they inhabit should reconsider what is seen as a non-issue as a challenge.[12] In this section, we outline the underlying philosophy sustaining these principles and show how defence organisations also express them in practice. More specifically, we first explore the relationship between the perception and the visibility of a challenge. Then, we take a closer look at the relationship between the language we rely on to think about the challenge and the range of possibilities available to frame it and address it.

Challenge Perception

Whether they are aware of it or not, each team member's perception of a given challenge is composed of tacitly assembled pieces of reality. In framing and formulating a challenge, leaders and their teams make some pieces more relevant than others based on attributes like shared values and interests, or, sometimes, on personal needs, frustrations, griefs and hopes.[13] In other words, what team members can perceive as a specific challenge is conditioned by their personal, organisational, social, or even biological constitution.

Biology offers a metaphor that we can extend to understand this principle. The anatomy enabling human perception actually shapes and biases this very perception. The retina is a key part of this anatomy and contains a blind spot. Nerves converge on the blind spot without photoreceptors to capture external light signals.[14] Yet, we never perceive this blind spot although we should perceive it constantly. The visual cortex of the brain actively compensates by filling the blind spot with colours and textures from the adjacent area. Our mind continuously compensates by filling a part of our field of vision, fudging an impression of consistency to shape how we perceive reality. In other words, our visual perception does not correspond to what is captured by the retina. The visual cortex alters the inputs and photoshops a few special effects to render our perception more consistent. Like the image

[9] Giddens, A. *Politics of Climate Change.* Cambridge: Polity Press, 2011.

[10] Mills, C. W. *The Sociological Imagination.* Oxford: Oxford University Press, 1959.

[11] Foucault, M. "Polemics, Politics and Problematizations: an interview with Michael Foucault". In Foucault, M., Rabinow, P. (ed.), *Ethics: Subjectivity and Truth.* New York: New Press, 1997. 118.

[12] Foucault, M. *Fearless Speech.* Los Angeles: Semiotext(e), 2001. 183.

[13] Inayatullah, N. *Autobiographical International Relations.* New York: Routledge. 2011. 6.

[14] The exercise is reproduced from Douglas Research Centre's Experiment Module at McGill University: https://thebrain.mcgill.ca/flash/capsules/experience_jaune06.html.

processed by our visual cortex, each individual's perception is already altered by *special effects* generated by the mind. *Perceiving,* as a process, is biased by nature.

Likewise, each individual or community may experience the same challenge differently. Perception is socially or subjectively biased. In other words, members of different groups or communities produce a different appreciation of a specific challenge. For instance, asking a group of infantry officers and a group of gender studies experts to formulate the 'most important' challenge that a specific defence organisation is facing would lead to totally different answers. While we could expect that officers would focus on a challenge that concerns optimizing a specific capacity; gender studies experts would more likely focus on a challenge involving oppressive power relations within and beyond the organisation. These two challenges would reveal much about the way each group perceives the organisation and its complex reality of human interactions. The blind spots of one group will lead its members to perceive some significant aspects of the organisation, but also to paper over gaps in their own understanding.

These intrinsic biases of perception mean that a leader and their team can never take a challenge for granted. Challenges and their formulation are an opportunity to surface the unstated and implicit assumptions of leaders, their teams and the wider organisation. To this extent, framing and formulating challenges is an opportunity for cultivating self-awareness in a complex environment. Challenges reveal the perceptions leaders and their teams prioritize in a specific situation by simply focusing on them from the outset, such as by focusing on the capabilities and intentions of an adversary state instead of environmental conditions, such as poverty. In other words, challenge statements reveal assumptions by ignoring specific elements. As the next section will highlight, challenge perception also results from the very concepts and language we rely on. The key idea is that the words we use produce special effects in and of themselves.

Challenge Conceptualisation

A second set of issues regarding reflexive challenge framing concerns conceptualisation, how do we implicitly or explicitly create, select and connect the concepts we use to frame and formulate challenges? In other words, how does framing operate to change not only the way we perceive a challenge, but also the way we think about the challenge? The language available to a leader and their team shapes how they categorise a complex environment and stratify it into discrete ideas, concepts and notions. Since all our intellectual grammar and vocabulary is tainted by our histories in some way, we can only seek to bring our biases into awareness, leverage them to think critically or to better work around them. In other words, language is constitutive of reality and the 'challenges' we perceive, instead of simply mirroring them.[15]

The way individuals observe and describe nature, for instance, reveals the importance of these questions. Could an individual describe any vegetation with a single word – say 'green-stuff' – and offer a satisfying description? A botanist would be right to view this exercise critically as an extremely limited way of discussing gardening and the complex tasks and challenges required. For instance, how would an individual distinguish between grass and dandelion, between lettuce and zucchinis with a single word? How would she

[15] Wittgenstein, L. *Philosophical Investigations.* Sussex: Blackwell, 2009.

or he perceive or conceptualise them as distinct flora? For any Canadian Armed Forces members deployed in Nunavik in Canada, this issue is not simply an exercise, but a reality. The Inuit dialect spoken in the region includes at least 53 words to describe snow.[16] This is obviously not limited to the way we name nature.

Colours, for instance, follow the same principle despite the fact that we can observe different wavelengths on the light spectrum. While the light spectrum contains an infinite quantity of possible variations as it is continuous, our language to describe colours is limited. Culture, in the end, shapes this language and in doing so, also shapes our perception of colours. Each culture breaks the light spectrum into discrete gradients of colour (blue, for an example in English) and subdivides its hues with names like navy, indigo, azure, or cyan, to name a few. This construction of categories influence how we perceive and think of colours, as Anna Franklin observes:

Two people with different colour lexicons see the colours the same way but they think about colour differently: the difference is cognitive rather than visual. Language has not fundamentally altered how colours are seen, but it has changed what we do with the information. For example, Russian has two words for blue – it distinguishes the darker and lighter blues into separate categories. Russian speakers, because of this fundamental distinction, are more sensitive to colours in that region of the spectrum.[17]

Likewise, cultural background knowledge informs distinguishing red from pink as two distinct colours. Language also makes a difference, as in some languages pink is light red. However, western societies perceive dressing up children in red or in pink as expressing a very different signification. Akin to colours, emphasising certain distinctions makes a significant difference in challenge framing and formulation.

The same principle finds echoes in societies, cultures, and indeed, in framing and formulating a challenge. What are the assumptions behind a challenge and its formulation? Each assumption — such as those related to justice, order, or legitimacy, are not objective or natural to human beings. We inherited these assumptions, as well as the language to describe them, from family members, friends, professors, and politicians to name but just a few. All the assumptions we hold have a specific meaning due to this contingent trajectory. The assumptions themselves also have a history: individuals defined and stratified them in given circumstances to delineate objects in the world. Reflexive methods invite us to think of those lines/boundaries as being artificial. This does not mean they are wrong but only that the very ideas we use could have been structured otherwise.

All these metaphors highlight that the concepts, notions, and ideas we use influence how we break up reality into categories that, in turn, shape the way we frame challenges. While researchers are just beginning to understand how culture is influencing this process, it has implications for framing challenges. For instance, measures of performance and effectiveness are never objective and ready-made for any operation. A leader and their team must usually design these measures. While designing these measures, teams rarely engage reflexively the frames they rely on to develop them. This often leads to measurements that are not relevant to understand operational progress, success, or failure, such as body counts.

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[16] Robson, D. "Are There Really 50 Eskimo Words for Snow?". *The New Scientist.* 18 December 2012. https://www.newscientist.com/article/mg21628962-800-are-there-really-50-eskimo-words-for-snow/, Accessed on 12 October 2020.

[17] Finnegan, G. "How we Perceive Colour Depends on Our Culture and Language – Prof. Anna Franklin". *Horizon,* 15 November 2016, https://horizon-magazine.eu/article/how-we-perceive-colour-depends-our-culture-and-language-prof-anna-franklin.html.

For this reason and as an example, Gen. Stanley McChrystal developed a counterinsurgency mathematical model:

"From a conventional standpoint, the killing of two insurgents in a group of ten leaves eight remaining: 10 – 2 = 8. From the insurgent standpoint, those who killed were likely related to many others who will want vengeance. If civilian casualties occurred, that number will be much higher. Therefore, the death of two creates more willing recruits: 10 minus 2 equals 20 (or more) rather than 8."[18]

With this mathematical language, McChrystal reframed assumptions behind attrition-based measures of performance inherited from US Army military culture. And, by relying on 'invalid' mathematics, he signalled that ISAF members would have to fundamentally reframe the challenge of insurgency. In doing so, he opened up new approaches to address this challenge such as by focusing efforts on the will of the people. As we will see below in the challenge co-evolution mode, the language and concepts leaders and their teams rely on to frame and formulate a challenge shape the approaches that are imaginable to address it. This is why inquiring into what makes a challenge a challenge is so important, since even minor modifications in assumptions may open up alternatives.[19]

Overall, the intent of this section is not to invite leaders and their teams to bring to awareness the conditions of possibility – such as perceptual biases, language, or inherited concepts – behind formulating and framing challenges. The intent is to invite leaders and their teams to be continuously reflexive when it comes to framing, formulating and addressing challenges. This ensures that their contribution will be more effective, relevant and perhaps set conditions for game changes aligned with military professional excellence. To do so, leaders seeking to enhance challenge framing skills must first bring to awareness the elements – such as personal and organisational background, habits or culture – that shape how they perceive complex contexts and the 'challenges' within them. This approach fosters the expectation that there is always more than one perspective available to make sense of a challenge. The number of perspectives available is in fact infinite. This, however, does not mean that reflexive team members are entirely free to choose how to perceive a challenge. The reality is more complex since there is no way to know whether a team member is actually free to select a specific perspective over another! There is also no way to ensure that a leader and their team brought into awareness the full range of elements shaping challenge perception. As a result, there is never a 'good' or 'unbiased' way of framing and formulating a challenge or reading it – and its formulation always limits the range of imaginable approaches to address it. Taking the time to continuously reframe and reformulate a challenge, instead of simply taking it as ready, allows leaders and their teams to be more reflexive. This opens up more approaches, including innovative ones, to address the challenge. As we will see below, practitioners can rely on appropriate reflexive methods to gain this awareness of the effect of frames on the way they perceive a challenge.[20]

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[18] Hall, M. and McChrystal, S. "International Security Assistance Force Commander's Counterinsurgency Guidance". ISAF Headquarters. February 2009. https://www.nato.int/isaf/docu/official_texts/counterinsurgency_guidance.pdf, Accessed on January 11, 2021.

[19] Webb, P. T. "Policy Problematization". *International Journal of Qualitative Studies in Education* 27/3. 2014. 364-376.

[20] For an introduction to cognitive frames, how to disrupt them and design them through strategic design, see the following TEDtalk by one of the authors: Dufort, P. "What is Strategic Design?". TedX Budapest. March 2020. https://www.youtube.com/watch?v=s5LWJ2WEukI

THREE MODES OF CHALLENGE (RE)FORMULATION IN PRACTICE

"Innovation doesn't start with an idea.
It starts with thinking in a different way about the problem
or by identifying a new opportunity."[21]
Christian Bason

Following through on the argument developed above, challenge statements are not ready-made, but rather the implicit or explicit expressions of wider cultural, organisational or social dynamics. This often leads an organisation to address the wrong problem right, as system theorist Russell Ackoff put it.[22] Instead of moving on with the "wrong" pre-formulated challenge, we recommend three modes of challenge-framing and formulation: Initial challenge formulation, challenge curation, and challenge co-evolution. Familiarity with these modes, including the methods suggested below, is a key for leaders and their teams to assist their organisation in preserving relevance, if not gaining an advantage. Moreover, recent research also suggests that opening up challenge framing and formulation to the wider team contributes to ownership, motivation and team building.[23]

Initial Challenge Formulation Mode

"Underlying the approach is a broader recognition
that fresh questions often beget novel – even transformative – insights."
Hal Gregersen[24]

In this sub-section, we share reflexive methods for leaders (especially senior leaders) facing the demanding task of formulating a challenge and developing relevant tasks to address it. While this becomes harder if we accept that challenges are not objective, this task remains crucial to the success of leaders, their teams, and the organisations. This sub-section recommends the Five Whys and question-storming as key methods.

Higher levels of the chain of command are less likely to formulate challenges explicitly. While this might frustrate senior leaders, this provides unique opportunities to frame and formulate challenges, to make them as relevant as possible for the organisation, and to unleash the capabilities of teams to address them. A lack of clear guidance provides fertile soil for challenge framing and formulation. Unclear guidance also provides the flexibility required to deploy the full potential of reflexive methods like design, which is complementary with the two modes described below: challenge curation and challenge co-evolution. As design theorist and practitioner Ofra Graicer observed, 'the deeper the confusion, the bet-

21 Bason. *Leading Public Sector Innovation*. 222.

22 Ackoff, R. *The Art of Problem Solving*. New York: Wiley, 1987.

23 Burger, K. "Understanding Participant Engagement in Problem Structuring Interventions with Self-Determination Theory". *Journal of the Operational Research Society* 2020. DOI: 10.1080/01605682.2020.1790307, Accessed on January 23 2020.

24 Gregersen, H. "Better Brainstorming: Focus on Questions, not Answers, for Breakthrough Insights". *Harvard Business Review* 96/2. 2018. 67.

ter the positioning for a meaningful inquiry.'[25] As we will see, working from pre-formulated challenges already limits possibilities for reframing.

NORAD, for example, sponsored a defence challenge to Canadian Forces College (CFC) OF3 & OF4 interns in 2019. This challenge initially focused on deterring symmetric threats through the Artic and Northern approaches by 2045. NORAD Commander, Gen. Terrence J. O'Shaughnessy, did not directly receive this challenge from higher levels in the chain of command, which is composed of the Chief of the Defence Staff in Canada and the Secretary of Defence and the Joint Chiefs of Staff in the US. The commander and his staff relied on strategic dialogue with the higher level of the chain of command, on extant defence policies and strategies,[26] and on NORAD's mission, in addition to the professional background of the commander.[27] The mandate to modernize NORAD combined with the explicit desire of the commander to mobilize the 'spirit of innovation' created favourable conditions for mobilizing reflexive methods.[28] This approach enabled a more open-ended and promising challenge framing and formulation by questioning what makes a challenge a challenge. This is what US Special Operations design theorist Ben Zweibelson calls moving from what- or how-centric questions to why-centric questions.[29] Why-centric questions are more likely to address the conditions of possibility of a problem rather than its effects, symptoms or expressions. To do so, large organisations, including some defence organisations, often rely on the Five Whys, developed and implemented by Toyota's Sakichi Toyoda, and the question-storming method, developed by Hal Gregersen, to unlock the full potential of a well-framed and formulated challenge.[30]

The Five Whys invite leaders and their teams to uncover the nature of a challenge by asking "why?" five times when they stumble on an apparent challenge they would like to invest resources in addressing. This method enables participants to distinguish the expression of a challenge from the environmental conditions which make the challenge possible. Indeed, asking "why?" five times is arbitrary as team members might bring forward a promising insight after the 3rd time or, sometimes, the 6th or 7th time. Several military designers such as Ofra Graicer, Ben Zweibelson and Jeff Goble would agree with Olivier Serrat and his observation that "when a problem appears, the temptation is strong to blame others or external events. Yet, the root cause of problems often lies closer to home."[31] Reflexive methods supporting challenge framing often lead to reverse the direction of the inquiry inward, that is, from the external environment toward the organisations, institutions, and professions they inhabit. For instance, while the challenge might seem related to a specific enemy

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25 Graicer, O. "Self disruption: Seizing the High Ground of Systemic Operational Design (SOD)." Special Issue: Reflexive Military Practitioners: Design Thinking and Beyond. *Journal of Military and Strategic Studies* 17/4. 2017. 36.

26 For example, the US National Security Strategy (NSS), the National Defence Strategy (NDS), the National Military Strategy (NMS) and the Canadian Defence Policy Strong, Secure and Engaged (SSE).

27 O'Shaughnessy, T. "NORAD and USNORTHCOM Commander's Perspective: Rethinking How We Think About Homeland Defence". 2019.

28 The literature also refers to Triple loop learning to express this process, see: Beaulieu-Brossard and Dufort. "Introduction…"

29 Zweibelson, B. "The Military Design Movement: Postmodern comedians of war". PhD Thesis. Lancaster: Lancaster University, 2021. DOI: 10.17635/lancaster/thesis/1176.

30 Gregersen, H. *Questions are the Answer.* New York: Harper Business, 2018.

31 Serrat, O. "The Five Whys Technique". In Serrat, O., *Knowledge Solutions: Tools, Methods, and Approaches to Drive Organizational Performance.* Singapore: Springer, 2017. 308.

hindering specific goals at first glance; asking "why?" several times often brings to awareness important challenges connected to deeper institutional, organisational, or social issues. Organisational challenges brought to awareness in this process are often a promising starting point. Addressing these organisational challenges might lead to transformational outcomes, eventually creating an organisation better suited to thrive in its environment.

Building on Serrat and the philosophy-informed section above, we advise senior leaders and their staffs willing to mobilize the Five Whys:

- *Diversity:* Assemble a team with the widest variety of mindsets and professional backgrounds possible, and position one member as an acting facilitator.
- *Provisional formulation:* Drawing upon communications from the chain of command, formulate an initial challenge statement that appears clear in its focus and intent.
- *First level:* Ask, "what makes this challenge a challenge?" Or "Why is this a challenge?" in sub-groups of 3 or 4 members. Collect the answers and cluster those that are similar.
- *Second level:* Divide these answers among sub-groups and ask the same question again, but direct them at the previous sets of answers. Collect answers, cluster similar ones and connect them to their parent answer.
- Repeat until the team no longer generates novel answers or reaches exhaustion.
- Reformulate the initial challenge based on systemic condition(s) brought to awareness during this process. Focus on aspects that would motivate the team to inquire further, depending on their degree of ambition.

Question-storming offers a competitive alternative to the Five Whys. Following Graicer, 'asking the right questions will be the driving force of an inquiry' as well as understanding why addressing the challenge is required in the first place.[32] Question-storming may provide a method to do so as it targets deeply held assumptions preventing the team from reframing the challenge. For question-storming to open up new pathways, we expand from Gregersen by articulating 10 principles for team members engaged in challenge framing and formulation:

- *Motivation:* Members should storm questions on a topic that they care about deeply. Motivation is a key driver in launching inquiry and ensuring both seriousness and success.
- *Reflexivity:* Throughout the process, remind team members to be as reflexive as possible by continuously asking themselves what makes this challenge a challenge.
- *Background knowledge:* Provide minimum background knowledge about the challenge to avoid directing questions towards a particular formulation or conclusion.
- *Questions only:* Participants must focus entirely on generating questions. The facilitator must discard any answer generated.
- *Open-ended:* Invite members to formulate open-ended questions. Open-ended questions are productive in that they invite multiple potentially lengthy and well-developed answers. The more open-ended a question, the more pathways to answer them. For instance, the open-ended question "Why NORAD would need to deter systemic threats by 2045?" opens several pathways to answer. In contrast, a question like "What is NORAD's concept of deterrence?" closes upon a single pathway.

[32] Graicer. "Self-Disruption". 36.

– *Short:* Likewise, questions that are short and simple tend to open more novel pathways than long-winded and complex questions.
– *Speculative:* Speculative questions should be encouraged as they orient teams towards multiple future possibilities instead of assuming continuity with the present. Questions beginning with "What if?" or "How might we?" must be encouraged.
– *Counter-Intuition:* Encourage team members to connect elements counter-intuitively, if not randomly. For instance, asking "What is the relationship between NORAD and Canadian political culture?" would not be directly related to the initial challenge submitted by NORAD staffers. Yet, attempting to answer this question would provide hints about NORAD as an important symbol in Canadian political culture.
– *Outsourcing:* Once each sub-team reached a satisfying challenge, they can outsource the challenge to another sub-team to receive feedback. Then, each sub-team attempts to answer the challenge in no more than 3 hours with the sole intent of providing feedback on challenge framing and formulation to the parent team, not solutions.[33]

The Five Whys and question-storming are not silver bullets. Their success in setting the conditions for reframing and reformulating a challenge depends both on motivation and a basic understanding of the philosophy behind these methods outlined above. They imply a serious intellectual commitment from participants in order to be fruitful.

Challenge Curation Mode

In most instances, leaders and their teams do not start addressing a challenge by developing one from scratch. They must address a challenge already formulated by higher levels of the chain of command. In most defence organisations, leaders and their teams accept the challenges formulated by the higher level and directly move on with addressing them. Doing so, however, would likely to lead to ineffectiveness, at best, and at worst, to addressing the 'wrong problem right' as presented above. To prevent this, and to remain consistent with the principle of understanding a challenge as contingent, leaders and their teams must speak truth to power by acting as a 'loyal opposition'.[34] They must turn to dialogue with the higher level, or, more precisely, to a *challenge curation mode.* In return, leaders must provide the psychological safety required for their teams to become a genuine loyal opposition and reward continuous, including critical, feedback on the challenge. Only then can they hope to address a challenge that is closer to a disease than its symptoms.

For design practitioner Christian Bason, challenging the initial formulation of a challenge remains an essential step of any design driven process.[35] While this might run contrary to military culture, challenging the challenge in a curation mode through dialogue with the higher level is only logical. After all, the higher organisational level of the chain of command would not submit the challenge to a lower level organisation if their knowledge were optimal in the first place. As Bason put it, due to its high degree of uncertainty and complexity the initial challenge formulated is always "fuzzy" until a more grounded inquiry enables a better formulation.[36] In other words, the organisations tasked with addressing a challenge should

[33] Wróbel, A. E., Cash, P. and Lomberg, C. "Pro-active Neutrality: The Key to Understanding Creative Facilitation". *Creativity and Innovation Management* 29/3. 2020. 424-437. DOI: 10.1111/caim.12372.
[34] Bason. *Leading Public Sector Innovation*. 222.
[35] Bason. *Leading Public Sector Innovation*. 222.
[36] Bason. *Leading Public Sector Innovation*. 222.

aim to become the highest knowledge authority over this specific challenge. To this effect, this organisation eventually gets in a better position to reframe and reformulate the challenge back to the sponsoring organisation. Both organisations must understand that the challenge submitted initially is provisional and merely serves as a point of departure.

While challenge curation might seem to work seamlessly in theory, reality rarely works as seamlessly. For this reason, we recommend finding inspiration in this challenge curation method for a fruitful experience with sponsors:

- *Set the stage:* The personal disposition of the challenge sponsor makes all the difference to challenge curation. Leaders already having some background knowledge in any innovation or change management methodology that relies heavily on dialogue and feedback with team members will likely inhabit the ideal disposition for challenge curation.[37] For instance, CFC OF3-OF4 interns never encountered resistance in challenging the NORAD challenge submitted to them. The NORAD commander, Gen O'Shaughnessy and NORAD Deputy Commander, Lt Gen Christopher Coates, provided the psychological safety to do so grounded by committing to a wider 'spirit of innovation'. Only with this tacit approval could CFC's design module become a safe space for challenge curation. Without this element, leaders and their teams must try to convince the higher level of the importance of challenge curation. If this avenue does not prove successful, the leader and their team can still curate the challenge themselves to set conditions for better results, although we recommend initial sponsors support.
- *Challenge the challenge:* a leader and their team should continuously challenge the challenge. In dialogue with the sponsors, the team leader can build on the philosophy and the two methods presented above. Asking what may seem like obvious questions is always a good place to start to challenge assumptions sustaining the challenge. For instance, the team leader can ask the sponsor:[38]
  - "Why is this a challenge?" or "What makes this a challenge?"
  - "Why is it important?", and to "Whom?"
  - "Who benefits from not addressing the challenge (implicitly or explicitly, inside and outside the organisation)? Who would benefit if we addressed this challenge?"
  - Likewise, "who is suffering from this challenge?" And, "who would suffer if we were to address this challenge?"

The team leader is more likely to be successful if they collect feedback from different stakeholders inside and outside the organisation before entering into a dialogue over challenge curation with the sponsor.

- If the "curated" challenge does not fall under the responsibility of the organisation, advise the commander to communicate with higher levels of the chain of command and the potential 'owners' of this "curated challenge". If relocating the challenge to a more relevant internal or external organisation is not feasible, carry on, but with the clear understanding that the organisation is addressing expressions of a much deeper challenge.

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[37] Pettit, S.L. and Toczek, D. M. "Like Hugging Grandma: Introducing Design into a Military Organisation". Special Issue: Reflexive Military Practitioners: Design Thinking and Beyond. *Journal of Military and Strategic Studies* 17/4. 2017. 166-173.

[38] Bason. *Leading Public Sector Innovation.* 223-224.

To go back to our example, the NORAD team already did their homework by submitting a challenge formulated with a high potential: "In what capabilities/warfighting functions should Canada invest most heavily to increase NORAD's ability to deter symmetric threats through the Artic and Northern Approaches by 2045?". While some aspects such as 'capabilities', 'deter', 'symmetric threats' and regional specificities like the 'Artic' closed certain answering possibilities, asking where to 'invest' combined with the "25 years" timeline encouraged reflection on potential futures inviting a wide range of insights including potentially radically innovative ones. Following challenge curation dialogue with the CFC design team, the NORAD team moved to this iteration: "How might NORAD deter symmetric threats effectively without relying on a nuclear deterrent through the Arctic and Northern approaches over the next 25 years?" By using the auxiliary verb "might", the NORAD team opened possibilities beyond investment in capabilities/warfighting functions, for instance. The second challenge curation process led by CFC design teams composed of JCSP AJWS 44 interns took place implicitly throughout design activities. Design teams delved further into the nature of the challenge by questioning each assumption sustaining the challenge statement without having clear guidance for doing so: "Why deterrence?", Why NORAD?", "Why through the Artic and Northern approaches?" and "Why in the next 25 years?". This continuous curation process evolved into the co-evolution mode below.

Challenge Co-evolution mode

"A design problem keeps changing while it is treated,
because the understanding of what ought to be accomplished,
and how it might be accomplished is continually shifting.
Learning what is the problem IS the problem.
Whatever [we] learn about the problem
becomes a feature of its resolution."
Horst Rittel[39]

As organisation theorist Karl Weick observes, leaders and their teams rarely confront a blank slate.[40] They are usually thrown into an ongoing challenging situation inherited from a previous team or into an emerging situation the organisation failed to anticipate. Likewise, working on this challenging situation leads to the generation of new knowledge about it. This new knowledge will not only set the conditions for reframing and reformulating the challenge, but will also open up new possibilities to address it. For this reason, framing and formulating a challenge and generating approaches to address it are always co-dependent, non-linear, and incremental until the team and their sponsor reach a level of satisfaction… or run out of time. We call this the "co-evolution mode", building on design theorists Kees Dorst and Nigel Cross.[41]

[39] Rittel, H. "The Reasoning of Designers." In Protzen, J-P. and Harris, D. J., *The Universe of Design: Horst Rittel's Theories of Design and Planning.* London: Taylor & Francis, 2010. 188.

[40] Weick, K. E. "Designing for Thrownness". In Boland, R. J. jr. and Collopy, F., *Managing as Designing.* Stanford: Stanford Business Books, 2004. 74.

[41] Dorst, K. and Cross, N. "Creativity in the Design Process: Co-Evolution of the Problem-Solution". *Design Studies* 22/5. 2001. 425-437.

In this mode, *the goal is to reach the most promising challenge-approach pair.*[42] The idea is that the former and the latter expand as they bounce against one another.

The co-evolution mode also calls for non-linearity, that is, continuously moving back and forth between 'steps', in any problem-solving process including design driven or planning driven models. This back-and-forth movement also means that teams must 'kill their darlings', that is, they must be able to remove older understandings of the challenge or provisional approaches in order to move on to a more refined challenge-approach pair. Likewise, as Bason observes, team members can accomplish tremendous things if they are able to let go of their ego and are willing to take career risks in this process.[43] In this back-and-forth movement, we recommend focusing on elements that seem interesting and especially surprising for the team as well as preserving the wildest thoughts or ideas. The feeling of surprise or wildness signals that the team is breaking from routine behaviour and knowledge. In other words, surprise means that the team is approaching or even breaching the limits of what they initially conceived as possible before undertaking the inquiry, thus setting the conditions for a more promising challenge-approach pair. For example, the CFC design teams implicitly and continuously sought a better challenge-approach pair when undertaking the NORAD challenge. Without being at the centre of the process, this co-evolution mode was implicitly ongoing during design activities. CFC interns enhanced the potential of co-evolution by experimenting with one design school of thought to the next, a feature of CFC's agnostic approach to design education.[44] This was especially so since the only baggage that interns carried from one school of thought to the next was what they learned about the challenge. This co-evolution must continue during the conduct of the operation or the strategy since intervening to address a challenge will, most likely, transform the conditions sustaining the challenge in a particular form.

Beyond the CFC's design education philosophy, generating robust challenge-approach pairs was an approach that bore fruit, with the NORAD team welcoming it and contributing to the dialogue. The NORAD team did so even where approaches generated by the interns eventually diverged from the 'strategic shaping' approach publicly advocated by the NORAD commander.[45] In other words, the openness of the NORAD team allowed the CFC interns to ignore the approaches already advocated by the commander. As a result, rather than confirming the expectations of NORAD, several CFC design teams developed the insight that the "real" challenge for NORAD over the next 25 years would not be deterrence in itself. From their perspective, the "real" challenge would be organisational survival in the form of preserving relevance including operational and even political relevance. Generating approaches to a challenge formulated around this insight opened new pathways for unlocking related insights and approaches that were unanticipated by the sponsors, such as on the importance of public relations for NORAD. While the challenge addressed was

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42 Dorst and Cross. "Creativity in the Design Process…"

43 Bason. *Leading Public Sector Innovation*.

44 For a brief overview on the agnostic approach to design education, see: Beaulieu-Brossard, P. and Mitchell, P. "Challenge-Driven: Canadian Forces College's Agnostic Approach to Design Thinking Education". *The Archipelago of Design: Reflexive Military Practices.* 13 January 2019. http://militaryepistemology.com/challenge-driven/.

45 Gen. O'Shaughnessy and his co-authors supported strategic shaping as an approach at the time of the exercise. They define this approach as targeting the cognition of the adversary, and more specifically the "incentive structures" making an aggression possible or potentially effective. O'Shaughnessy, T., Strohmeyer, M. and Forrest, C. "Strategic Shaping: Expanding the Competitive Space". *Joint Force Quarterly* 90/3. 2018. 12.

limited to the context of an exercise, ultimately the NORAD team gained valuable perspectives and insights for NORAD modernization and transformation in general, and especially for nurturing a new Command and Control construct, called NORAD Combined Force Air Component Commander (CFACC).

CONCLUSION

Defence organisations must address several pressing challenges. For this reason, investing time and resources in questioning these very challenges instead of directly developing approaches might seem counter-productive. Echoing the Einstein quotations, which prefaced these recommendations, and building on philosophy and reflexive methods, we argued the opposite. Familiarity with, if not proficiency in, challenge framing and formulation is essential for mid- and senior-level officers. Challenges are never ready-made, natural or objective. This is especially so in the complex security environments of the 21st century. Challenges are not only contingent to specific circumstances, they are contingent to the community framing and formulating them. In contrast, addressing a challenge head-on does not take into consideration that our very way of thinking about a challenge might be hindering the discovery of optimal or innovative approaches to address it. Most importantly, the range and quality of the very approaches generated to address a challenge are co-dependent with the way teams are framing, formulating, and curating them. As team members learn more about the situation they are facing, their understanding of the challenge evolves. Reframing and reformulating the challenge enables team members to open up possibilities that were unthinkable before addressing it. This is why team members must continuously challenge the challenge statement by questioning and reformulating it.

Thinking reflexively – that is, the capacity to make explicit the implicit references and processes team members and their organisation use to perceive, conceive, and act in the world – offers a game-changing advantage to personnel in organisations intervening in complex environments. Challenging challenge statements and reformulating them continuously is a vital expression of this way of 21st century thinking. Only by treating challenges reflexively will an organisation acquire the capability to create and implement radical innovations. Although leaders and team members that are more inclined to criticism, scepticism or cynicism are more predisposed to think reflexively and challenge the challenge, this article sought to provide intelligible and methodical ways of making reflexive thinking accessible. We introduced the philosophical background supporting this concept since we believe that there is no shortcut for developing advanced capabilities in challenge framing and formulation. To continue developing skills in challenge framing and formulation, we invite readers to further explore the philosophical tradition behind this process, as well as the reflexive methods, including design. As NATO is currently revising the Comprehensive Operational Planning Directive (COPD), we highly recommend that NATO, its members and partners take challenge framing and formulation seriously in future revisions of training, doctrine and professional military education.

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