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STRATEGIC PLAN to IMPLEMENT RED TEAMING in the CANADIAN FORCES (CF)

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MAIN TAKEAWAYS

WHO IS THE PEER OF THE RED TEAM
NO DOUBT THIS CONCEPT WOULD IMPROVE ANY PLAN
OR OPERATION BUT MAY NOT BE THE BEST SOLUTION
TO AN ACADEMIC - THIS IS AN INDEPENDENT PEER REVIEW
TO A UNIFORM THIS IS AN INSPECTION
THE GAMES RT WAS UNIQUE AND CAN NOT BE THE SOLE 1/20 GUIDANCE
IT'S UNQUESTIONABLE SUCCESS WAS UNIQUE AND MAY NOT BE A GOOD
(OVER)

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D. Key Definitions (to incl red, Blue, independent peer review .....)

END ALL EXAMPLE OF THE WAY AHEAD.

THIS PLAN COMES ACROSS AS A NEW COMBINED COMBINATION OF A MENTORSHIP/INSPECTION PROGRAM.

EXECUTIVE SUMMARY

This document provides an abbreviated estimate and an outline strategic plan for the implementation of red teaming in the CF over a 3 -4 year time period.

Red teaming is a proven combat multiplier that strengthens operational plans and develops more robust and confident operational staffs.

To accomplish the stated strategic objective, this plan needs a senior CF sponsor/champion. Strategic success is based on close cooperation between the supported operational commanders and DRDC with early support from experienced contractor-mentors.

STRATEGIC PLAN
to
IMPLEMENT RED TEAMING IN THE CANADIAN FORCES (CF)
"A way forward for decision support red teaming in DND / CF"

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References:

A. **The 'Best Practices' of Red Teaming**, Dr. Brad Gladman, DRDC CORA, TM 2007-29, July 2007
B. **Red Teaming: Developing a Foresight Capability in the Canadian Forces,** Matthew Lauder et al, DRDC Toronto, draft of 06 December 2010
C. **Games Red Team (GRT) Final Report**, Joint Task Force Games (JTFG), Vancouver 2010 Winter Olympics, May 2010
D. **The Role and Status of DoD Red Teaming Activities,** (US) September 2003
E. **Red Team Handbook**, (US) University of Foreign Military and Cultural Studies (UFMCS), v.5, 7Nov09
F. **A Guide to Red Teaming**, DCDC Guidance Note, (UK) February 2010

Preamble

1. Strategic plans are the product of strategic estimates. This plan will include some elements of the estimate where it is deemed important to the reader's understanding.

2. It is not the objective of this document to justify or "sell" red teaming. The references collectively state the case, as does the investment by our close allies and DRDC.

3. It is also not necessary for this document to define red teaming. This has been thoroughly done at Ref B. Suffice it to say that red teaming is:

   "... a dynamic organizational support activity undertaken by a credible team that aims to nurture foresight by creating a collaborative and reflexive learning environment in which the team, through the application of critical methods and techniques, challenges the beliefs, assumptions, and concepts that underpin the planning, structure, and operations of the (supported) organization."

   In simple terms, red teaming is the challenge function; it formalizes peer review in operational planning as is commonly done in other professions. These definitions will

[1], [2] Fitch and Sand were the core members of the Games Red Team that supported Comd, Joint Task Force Games (JTFG), the CF formation supporting the 2010 Vancouver Winter Olympics and Paralympics. Using our experience of red teaming and knowledge of the CF, we feel well equipped to define the way forward for a red teaming capability in DND / CF.

not be transparent to the uninitiated. Clarity comes with a study of the methods, techniques, and effects of red teaming.

4. This paper draws upon Canadian military red teaming experience, in particular the JTFG GRT, as well as relevant research and experience by our close allies.

Strategic Objective: to implement red teaming in the CF.

5. This paper will discuss relevant factors, and lay out the activities required for successful implementation of red teaming in DND/CF. Simple time and resource estimates are included. This strategic plan has sometimes been referred to as the "red teaming template" for the CF.

6. **Strategic vision.** Strategic success will have been achieved when:

- existing experience has been passed to the next generation of red teamers
- CF commanders will have accepted the concept of red teaming and will be actively seeking red teaming support
- DRDC will have advanced knowledge of red teaming methods and techniques, including uniquely Canadian cultural aspects
- DRDC will have developed methods for measuring the effectiveness of red teams and red teaming
- A centre of excellence for red teaming will have been established that is capable of generating red teams to meet CF requirements

Strategic Objective Analysis:

7. **Why institutionalize red teaming in the CF?** From the Vancouver Winter Olympic Games experience there is clear evidence[3] that it is a successful method of enhancing the OPP and command foresight. Red teaming has been conducted formally and informally in the CF for many years. Its manifestations have ranged from extensive mimetic, or threat emulation red teaming including highly professional and regulated laboratory-style and computer-supported war gaming for research and training; to diegetic, or decision support red teaming in the form of a single confidant giving a commander an alternative view or "sober second thought"[4] behind closed doors. With the growing body of evidence of the utility of red teaming and our recent Winter Olympics experience, it is clearly time to offer commanders improved foresight and the benefits of independent peer review through decision support red teaming in a more scientific and quality controlled format.

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[3] See Foreword to Ref C (Annex E); and Canada Command citation "... red teaming in the Canadian Forces...(is)...a method to unobtrusively but effectively identify gaps or weaknesses in plans, preparations and capability." (VAdm Donaldson)

[4] Sir John A. Macdonald, Canada's first prime minister, said the Senate was to be a place of "sober second thought"

8. The promise of red teaming is that it enhances Blue planning foresight, by assisting the command team to more fully appreciate the complexity of the operational environment (not just through the eyes of the adversary, but through the eyes of all agents in the battlespace). Red teaming:

   - helps reduce the risk of plans being compromised through oversight or misinterpretation of assumptions, factors and the human aspects of complex problems or processes
   - facilitates and prompts evolution of the operational perspective in the OPP cycle
   - helps to foster confidence in the Blue planning process and outcome
   - promotes the robustness of the Blue staff and inoculates them against the effects of intellectual paralysis and surprise
   - provides pervasive and persistent independent peer review in a privileged platform environment

During the recent McNaughton-Vanier Round Table[5], LGen Leslie stated that "we have learned too much the hard way"; the CF must become a more proactive learning organization. He promoted the use of experts and the need for a trusted network that can deliver "fearless advice in private".

9. **Multi-year.** To fully integrate Red Teaming into the CF will require a multi-year phased approach.

10. **Multi-level.** Consideration will have to be given to red teaming at the strategic, operational and tactical levels of operations.

11. **Across the operational spectrum.** Disaster response (domestic and expeditionary), domestic security and public safety, expeditionary ops, hard aspects (military intervention), and soft aspects (data and information protection) are all types of operations that benefit from red teaming. This strategic plan should include early employment of experiments/use cases built on a variety of operations types.

12. **A variety of techniques on the red teaming spectrum.** The strategic plan should seek opportunities to employ the full range of red teaming methods and techniques as described in ref E and F as appropriate to level and operational requirement.

13. **Cultural Context.** Challenging the honest hard work of a dedicated professional staff has the potential for creating bad feelings and negative outcomes. Red teaming must therefore be culturally sensitive. Not all the techniques described in ref E and F will be productive in Canada. This assertion will be examined fully in the proposed

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[5] On **January 19th, 2011**, the First McNaughton-Vanier Round Table on Government Decision Support was held in Ottawa. Lieutenant-General **Andrew Leslie** (Chief of Transformation, Canadian Forces), **Peter Schmidt** (political scientist from Stiftung Wissenschaft und Politik, Berlin) and **Franklyn Griffiths** (professor emeritus, Political Science, University of Toronto) discussed the ways in which academic support might improve government decision making.

"Guide to the Selection, Composition, Training and Employment of Canadian Red Teaming Practitioners". See the Red Teaming Guide outline at Annex C.

14. **Current state of red teaming in CF**. Elements of red teaming exist in the CF today although are not generally recognized for what they are. They are embedded intuitively within the military culture as OpFor during CPX/FTX or as a component of the Intelligence Cycle and the operational planning process (OPP). Examples include:
    - Commander's confidant (informal)
    - Air Force Operational evaluations
    - Navy Work ups
    - Army – CEFCOM predeployment confirmation exercise

    These nascent red teams should be recognized in the strategic plan and nurtured for their contribution to Canadian red teaming.

15. **Joint Interagency Multinational and Public/Private (JIMP) (Comprehensive Approach)[6] Operations.** For some time now, virtually all operations conducted by the CF are in the JIMP (Comprehensive Approach) environment. Many of our JIMP (Comprehensive Approach) partners have red teaming experience (but would not know it by that name) and many are familiar with the concept of constructive peer review. OGDs, NGOs, and the private sector have much to contribute in the way of alternate perspectives/alternative analysis/alternative futures. They ~~should~~ be engaged in CF red teaming education and practice.

Selected Factors/Deductions

16. Where to situate Red Teams. Red Teams must be trained and employed at the appropriate level. If the most productive level of the diegetic form of red teaming is at the operational level, it follows that training and development should occur at the CFC and employment at a formation headquarters. Creating a red teaming centre of excellence at CFC and DRDC Toronto generates synergy with in place resources and within the intense learning environment that develops future formation and strategic commanders. Future commanders may well have experienced and learned the value of red teaming at this early stage.

17. Resources to establish, train and implement a RT – people, facilities, funding. Identifying successful Red Teamers, with the requisite distinct characteristics, requires a formal and specific selection process. The development and implementation of this selection process is as important as the employment of a red team. There is great risk of failure if Red Teams are filled with random "available" personnel. Since Red Teaming is essentially a peer review process it is appropriate that the centre of excellence be co-located with the centre of excellence that educates

[6] The term "JIMP" is deficient in that it is inherently military-centric whereas in many JIMP ops the military will play a supporting or secondary while nonetheless essential role. We continue to use it here as it is well established and beyond the scope of this paper to propose a new term.

future senior commanders. CFC should be considered to determine what additional resources and facilities would be needed to support a small Red Teaming centre where it will have the greatest impact and effect on future CF senior leaders.

18. Sponsorship/Championing of a concept demonstrator RT or teams. The highly structured hierarchical nature of a military headquarters and the martial personality do not easily allow or accept challenge and constructive criticism by a Red Team. Until Red Teaming is accepted as an integral function of military planning the Commander who chooses to employ this methodology will have to initially impose on Blue staff to accept and cooperate with the Red Team until they are fully integrated and accept the need and value of each. The sure way for Red Teaming acceptance is for very senior leaders to publicly champion Red Teaming.

19. Milestones. For Red Teaming to be credible and successfully employed in the CF it must be developed as a project. Simple estimates indicate a 3-5 year project cycle.

20. Partnership with DRDC, RMC, Allies – why, benefits, pros, cons. Red Teaming is not an exact science. It is a complex human interaction. It is challenging to develop into a practical and useful CF tool. The very definition of Red Teaming implies a broad understanding of all aspects of the subject. It is not a parochial military process and much can be gained from making use of science, research capacity and analysis from DRDC, academe and the experience and knowledge gained from allied Red Teaming efforts.

21. Where does RT fit into CF doctrine? No modern military operation ever occurs in isolation from other aspects of society. Red teaming will always be employed in a joint environment with elements of OGDs, NGOs the general population and allies involved. It is part of the JIMP (COMPREHENSIVE APPROACH) environment.

IS QUESTION ANSWERED? DOES CANADA FO HAVE JIMP DOCTRINE

22. Measuring success and effectiveness. To be valued by a commander, the benefits of Red Teaming must be measurable. A clear definition of success is essential. A subjective personal assessment is not sufficient. An analytical scientific measurement of effectiveness should be developed. The most effective resource to achieve this would be to employ DRDC to monitor, develop and analyze methods of measuring effectiveness of red teaming.

Summary of Key Deductions

23. **On-going research.** Red teaming is still in its infancy, particularly in Canada. There is a continuing requirement to better understand: the essential personality characteristics for red team members and how to select them ; the effectiveness of the different red teaming methods for different situations; and how to measure the effectiveness of red teaming.

24. **Senior leader buy-in is essential.** Red teaming only exists to support a commander. |During first contact, a headquarters staff does not naturally embrace red teaming as it

implicitly suggests the commander's staff cannot fully plan a complex operation without 'outside' assistance. Over time and with careful integration the staff comes to trust and appreciate the red team. Prior to that trust being established there is no substitute for the legitimization of Red Teaming being imposed by a commander. He or she must make it clear that the red team is required and that it will have the staff's cooperation. The optimum condition for success in introducing Red Teaming to the CF is a senior General Officer (3-star or ADM) to Champion red teaming, and a Formation Commander with a staff and an operation to plan to conduct an experiment/use case. Red teams can also be applied to conduct peer review of existing plans in arrears, working with the responsible commander and staff.

25. **Red team leaders.** The selection of red team leaders is critical to success. These individuals must be able to build a trust relationship with the commander and the staff. They must be familiar with the operation being planned and prepared to commit the time necessary to lead their team. The Red Team leader must never be in the chain-of-command of the supported commander and must have the ability to 'park his or her ego at the door'. Likely candidates could be drawn from recently retired colonels and generals along with the occasional exceptional former lieutenant-colonel. Their participation is not necessarily full-time but their engagement will frequently be intense.

26. **Need to build two red teams.** An initial commitment of 4 – 12 persons, (including an allowance for attrition), to be trained and employed for four experiments/use cases is the critical mass from which successive red teams can be generated. These initial red teams should be composed of lcols/majs. Space for one or two exceptional capt/sr NCO, some Defence Scientists[7] and one or two other civilians with experience in red teaming will enhance the composition of these experimental teams. MOC/career field are not as important as an individual's operational experience to demonstrate initial credibility to Blue. It would be counter productive to draw red teamers from the Blue organization that is to be "challenged" as it will immediately create an irresolvable conflict of interest.

27. **Need for red teaming centre of excellence and training facility.** To be sustainable, red teaming should evolve into a specialty common to most military occupations. The selected centre of excellence will rapidly gain experience in personnel selection and educational methodologies that will ensure lessons and best practices are transmitted from one serial of newly qualified red teamers to the next. Over time, this centre will establish a small surge capacity of senior and supplementary red teamers when needed.

28. **Need for a Canadian-specific red teaming handbook/guide.** Ref E and F are excellent and should be used in CF red teaming training/education. However, due to the culturally sensitive nature of the craft, there are elements of the approach to red

[7] As we promote the "soldier-scholar" so should we develop our "warrior-scientist". The cross-pollination of these two great sectors of human thought, military and academic, by practitioners coming from one side or the other but with credentials on both sides, makes a formidable combination.

teaming in Canada where applying the full spectrum of the US or UK tools will be less than successful. Annex C provides the outline of a Canadian supplement to these allied publications to capture the specific-to-Canada lessons learned during the preparations for and conduct of the 2010 Winter Olympics (Op PODIUM).

Options (for achievement of the Strategic Objective), **Comparison of Options** and **Selection of Preferred Option**

29. Implementation mechanisms:

- Defence Services Programme (DSP) project
  - +Well understood by CF commanders
  - - Cumbersome; optimized for much larger projects
- DRDC Technology Demonstrator Project (TDP)
  - +flexible tool well suited to developing new concepts and experimentation
  - +suitable to this size of project
- DLCD Statement of Capability Deficiency (SCD)
  - -single service sponsor may reduce acceptability by others
  - + responsive to Army training and doctrine requirements
  - - better suited to rapid equipment procurement and deployment
- **Preferred option** is DRDC TDP

WILL THIS SUPPORT ORCS IT SUPPORTABLE BY A CHAMPION?

30. Possible alternative approaches to **red team training:**
  - CF centre of excellence (optimum is CFC closely allied with DRDC Toronto):
    - +Produce uniquely Canadian product that is culturally sensitive to CF requirements
    - -Cost of establishing CF centre of excellence
    - + inherent surge capacity
  - Send candidates to UFMCS (US):
    - + allied centre of excellence already exists
    - - costs of tuition and TD allowances
    - - not culturally sensitive to Canadian requirements
    - - no surge capacity for Canadian operations
  - Build through mentoring with little formal instruction
    - +least expensive option
    - - less likely to produce uniformly effective product
  - **Preferred option** is CF centre of excellence

- CAN BE SOLVED WITH CF SPECIFIC HANDBOOK/DOCUMENTS BUT YOU'LL STILL NEED A COE TO MAINTAIN STANDARDIZATION

MIL/GOV ?

MILITARY TRUE BUT - WHOLE OF GOV PROBABLY COULD ACCOMPLISH WELL AMB - SCHRAM !

30. **Level of operation** for initial experiments/use cases:

- Strategic
  - -few operations from which to choose
  - - Canadian experience is relatively limited, making it more difficult to find suitable candidates
- Operational
  - +challenging but manageable complexity
  - + good pool of experienced Canadians
  - + most likely level for future operations
- Tactical
  - - not sufficiently challenging for best learning/testing
  - - staffs are generally more practised
  - + broad choice of operations from which to draw
- **Preferred option** is operational level

The Strategic Plan

31. **Outline**. This is a five phase plan with three lines of operations, converging to two lines at plan maturity. This is illustrated graphically at Annex A.

32. **Lines of operations:**

- **DRDC** research and development including contributions by extended SME networks (such as RMCC). All phases
- **CF** the conduct of selection, training, and experiments/use cases. All phases
- **Contractor - Mentors**. Phases 1 – 4 only

33. **Phase 1**. Establishing conditions for success:

- Achieve senior leader buy-in and support (see para 24.) including: appointment of a Champion; approval for implementation of this strategic plan; and securing the resources for a 3 – 5 year red teaming project. This initiative will be led by ADM (S&T) with DGSTO and contractor-mentor support.

- Champion forms joint steering committee to include reps from CMS, CLS, CAS, CEFCOM, SOFCOM, CANADA COM, CANOSCOM, DRDC, CDA, etc. Steering committee will determine sourcing of red teamers and select commanders/staff/operations to be supported by a red team. The commander tasked with employing a Red Team must be actively engaged and support the selection the Red Team leader

WHO IS THIS RT LDR A 'PEER' OF

- Commission the production of the Canadian "Red Teaming Guide". See Annex B

- Establish a small project management staff or continue to manage within DRDC thrust PG0.

34. **Phase 2.** Selection and training of two red teams:

- Establish training location and facilities
- Steering committee supported by project team and in consultation with contractors select, concentrate, and train sufficient people for two red teams
- Synchronize training and location of red teams with suitable CSC exercises and subsequent first use cases/experiments
- For comparison purposes, one Canadian attends parallel red teaming course at UFMCS, Ft Leavenworth then joins an existing red team

34. **Phase 3.** Conduct first use cases/experiments with each team assigned to a different non-combat operation (e.g. DART, public safety ops, disaster response)

- Newly trained red teams are assigned to a commander/staff/operation to work with them through a full OPP cycle
- DRDC monitors and analyses individual and group interactions as well as develops measures of effectiveness
- Contractor - mentors make periodic visits to coach/mentor all participants (Blue and Red)
- At conclusion of this phase a study session is convened to determine lessons learned and best practices
- Write and consolidate initial Red team doctrine for the CF

35. **Phase 4.** Conduct of second use cases/experiments with each team assigned to a different combat operation (e.g. the next armed expeditionary or SOF operation)

- Analyse team performance and rebalance the two red teams for individual strengths and weaknesses, and attrition
- For comparison, one Canadian attends a parallel red teaming course at UFMCS, Ft Leavenworth then joins an existing red team
- Red teams are assigned to a second commander/staff/operation to work with them through an OPP cycle
- DRDC monitors individual and group interactions as well as continuing to develop measures of effectiveness
- Mentors make periodic visits to coach/mentor all participants
- At conclusion of this phase a study session is convened to determine lessons learned and best practices

36. **Phase 5.** Steady state is attained:

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- Centre of Excellence established
- Convene doctrine and course writing board
- Teams are deployed to subsequent commanders/staffs/operations as per operational requirement
- Between OPP assignments, red teams can conduct independent peer review of existing CF operations and contingency plans (especially to validate assumptions and perception of "threat") in conjunction with the responsible commander/staff.
- DRDC conducts on-going research and analysis (periodic visits, post-op debriefs)
- Contractor-mentors no longer required

IPR

IS THIS AN IPR OR IS THIS GOING TO BECOME A REVIEW / INSPECTION TEAM

37. **Resources.** Resources needed to implement this strategic plan are estimated at Annex

Recommendations

39. That this plan be approved, resourced and implemented

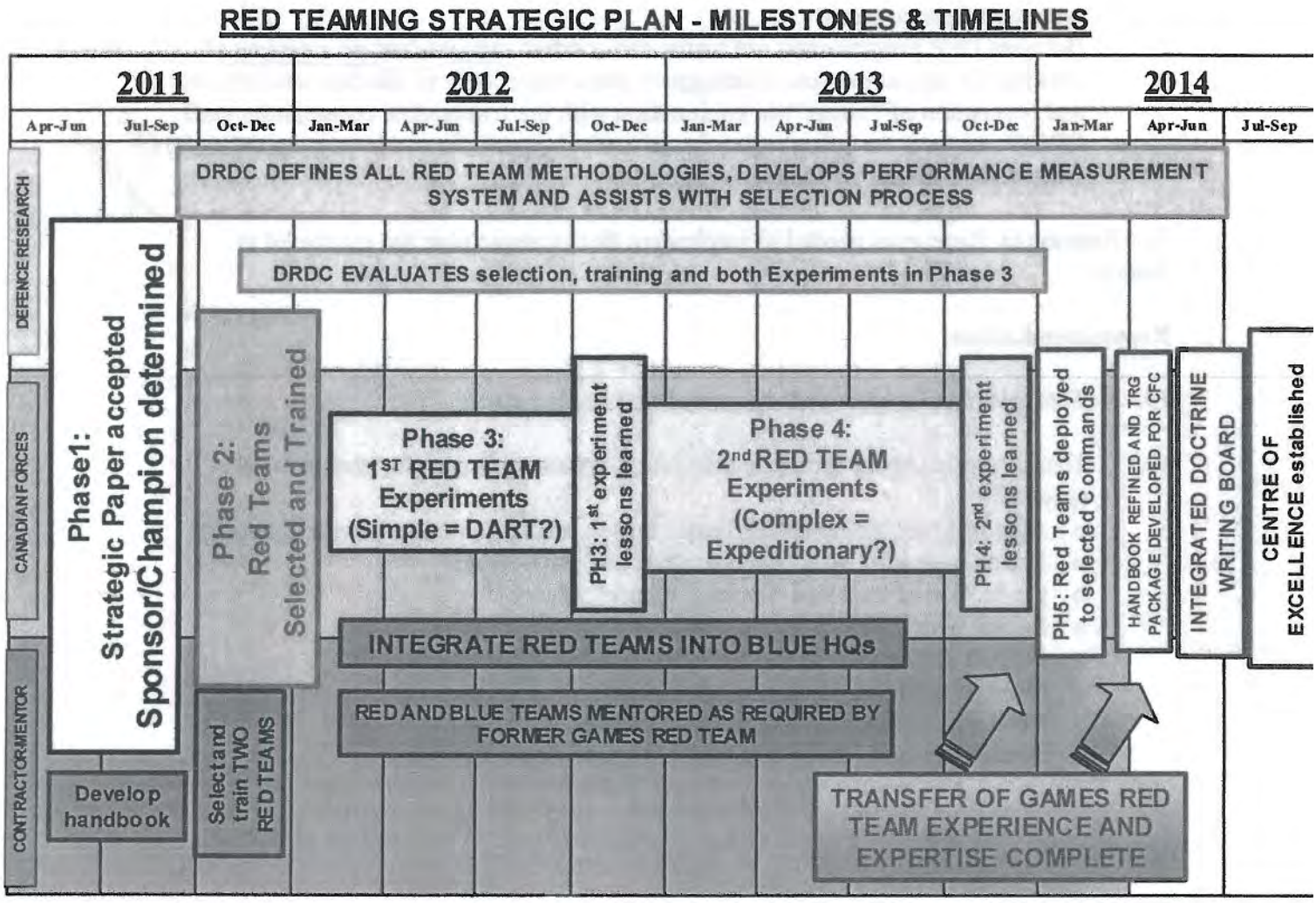
40. That a contract be let for a selected contractor-mentor team for phases 1 – 4 to include:
    - support to achieving senior leader buy-in, maintain dialogue with Champion
    - liaison with joint steering committee and project staff
    - production of the "Red Teaming Guide" Annex C
    - liaison with UFMCS
    - support preparation of red teaming course and training facility
    - assist in selection of first two red teams
    - teach and mentor first red teaming course
    - mentor first and second red teaming experiments/use cases

Annexes:

A. Milestones and Timelines
B. Red Teaming Guide – outline for "guide to the selection, composition, training and employment of Canadian red teaming practitioners"
C. Red Teaming Credo
D. Resource Estimates
E. Foreword to Ref C **Games Red Team (GRT) Final Report**, Joint Task Force Games (JTFG), Vancouver 2010 Winter Olympics, May 2010

D. Key Definitions (to incl red, Blue, independent peer review .....)

Annex A. Milestones and Timelines



Annex C **Red Teaming Credo**

Red teaming is an intimate cultural experience and an intellectual endeavour of the highest order where all participants are challenged to be the best they can be to produce the best possible plan and the most robust command and staff team. It should not be surprising therefore that there are uniquely Canadian aspects to red teaming. One way of reflecting these national differences is in our red teaming credo:

i. **Do no harm**. Red teaming must not harm any Blue function, plan or process;
ii. **Build not break**. Red teaming is to challenge but never overwhelm Blue. The challenge presented by the red teaming must be was calibrated to remain within the capacity of Blue to manage. As Blue strengthens, red teaming can increase the complexity and level of challenge. Exercises are structured specifically for Blue to determine and rectify the problem themselves;
iii. **Blue owns the Plan**. Ensure that red teaming does not take over, or become the default to any alternate solution to the problem; and
iv. **Collaboration, not confrontation**. Red teaming must be challenging (if necessarily vigorously so), but not confronting. Blue to is encouraged to reconsider a concern or problem through mentoring or credible scenario discussion and open, candid dialogue allowing Blue to find and fix any previously unidentified issue. Red teaming does not work against Blue, rather it prompts Blue to examine different aspects of a problem perceived through the eyes of the adversary.

Collaboration, not confrontation. Challenging (if necessarily vigorously), but not confronting Blue to self examine a concern or problem through mentoring or credible scenario discussion and open, candid dialogue allowed Blue to find and fix any previously unidentified issue or concern. Red does not work against Blue rather it prompts Blue to examine different aspects of a problem perceived through the eyes of the adversary. This is challenge to enhance performance; red teaming serves to mentor Blue in a learning environment. Increased foresight brings increased insight.

D. Resource Estimates

Annex E. Key Definitions

Red

Blue

independent peer review

etc

DRAFT

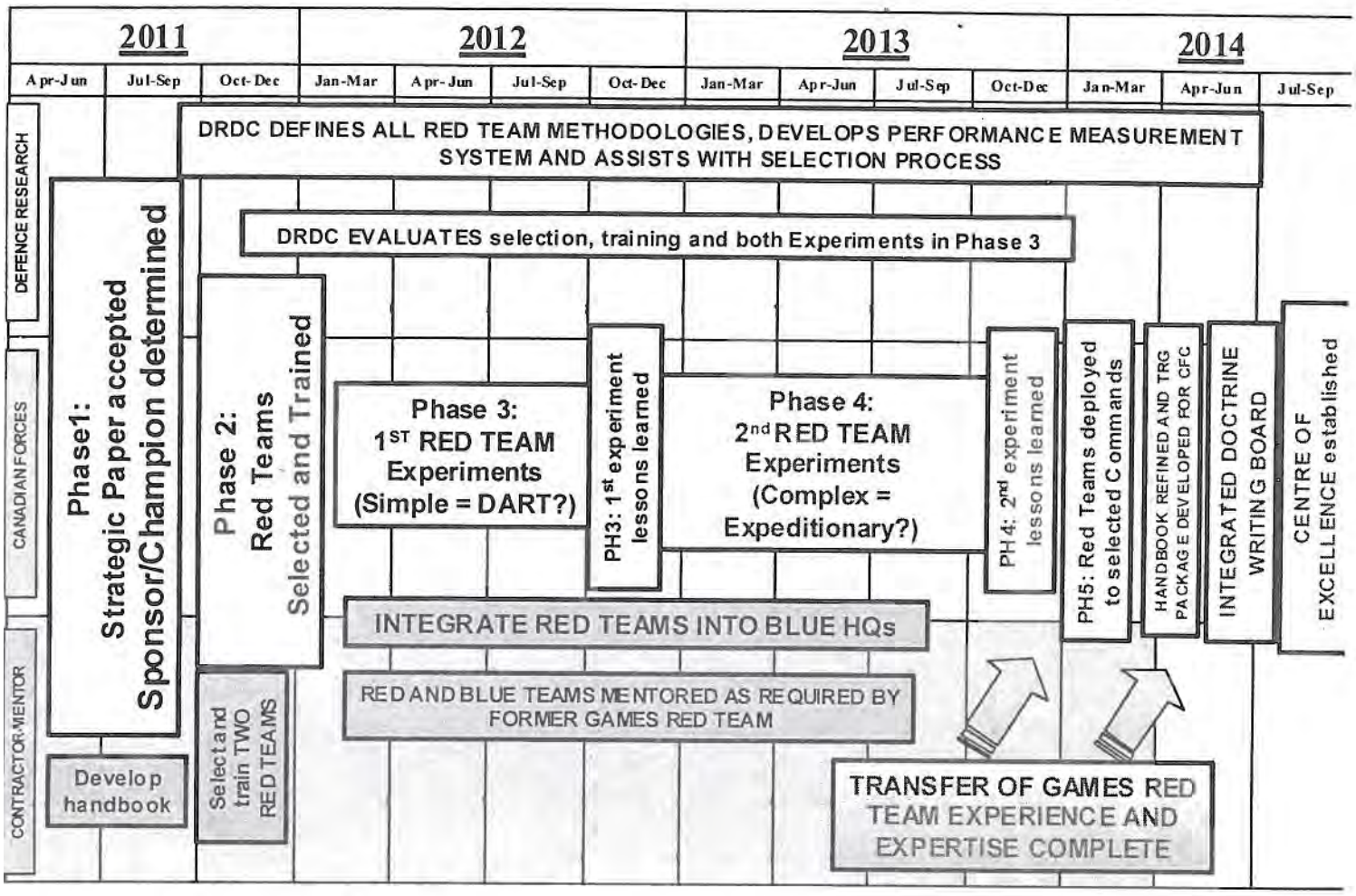
RED TEAMING IS A DECISION SUPPORT FUNCTION THAT PROMOTES CRIT THINKING AND LEARNING THROUGH CHALLENGING PLANNERS AND DECISION MAKERS FROM ALTERNATIVE PERSPECTIVES

DRAFT Ver 4_2 10 Mar 11

STRATEGIC PLAN TO IMPLEMENT RED TEAMING IN THE CANADIAN FORCES (CF)

Annex A. Milestones and Timelines

RED TEAMING STRATEGIC PLAN - MILESTONES & TIMELINES



DRDC - DEFENCE RESEARCH & DEVELOPMENT CANADA
DART - DISASTER ASSISTANCE RESPONSE TEAM
HQ - HEADQUARTERS
BLUE - THE MILITARY HEADQUARTERS STAFF RESPONSIBLE FOR DEVELOPMENT OF A COMPLEX OPERATIONAL PLAN (INCLUDES THE COMMANDER)

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